

Draft Environmental Impact Statement for Improvements to the Andrade Port of Entry, Andrade, California

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**General Services Administration
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COVER SHEET

RESPONSIBLE AGENCY: GENERAL SERVICES ADMINISTRATION

TITLE: Draft Environmental Impact Statement for Improvements to the Andrade Port of Entry, Andrade, California

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Abstract: The General Services Administration (GSA) proposes expanding, renovating, or replacing the Andrade Port of Entry to improve the safety, security, and operations, and provide better control over illegal activities at the border. The GSA has identified and assessed five action alternatives and the No Action Alternative. The five action alternatives are as follows: (1) New Facility on Current Site and Adjacent Land to West (two variants), (2) New Facility on Current Site and Adjacent Land to East, (3) New Pedestrian and Vehicle Facility on Peninsula, (4) New Facility on Peninsula for Vehicles Only, and (5) New Facility in Arizona for Vehicles Only. Under all of the alternatives, the affected environment is within and immediately adjacent to the site. Analyses indicate only minor environmental impacts and little difference in the impacts among Alternatives 1 through 4. Alternative 5 (New Facility in Arizona for Vehicles Only) would cause the elimination of approximately 50 acres of prime farmland. The GSA has not chosen a preferred alternative and seeks public input to assist in choosing a preferred alternative for the Final Environmental Impact Statement.

Public Comments: Comments on the Draft Environmental Impact Statement may be submitted through the end of the 60-day comment period (expected to be January 10, 2006), which will commence with the publication of the *Federal Register* Notice of Availability for this document. Comments may be submitted in writing, orally, or by electronic mail to the General Services Administration at the address, phone number, or e-mail listed above. Oral or written comments may also be submitted at a public meeting to be held Wednesday, November 16, 2005, from 3:00 pm to 6:00 pm, at the Shilo Inn, Yuma Conference Room, 1550 South Castle Dome Road, Yuma, AZ. Comments submitted will be considered in preparation of the Final Environmental Impact Statement.

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SUMMARY

Purpose and Need for Action

Introduction

The General Services Administration (GSA), through its Border Station Program, assists the Bureau of Customs and Border Protection (CBP), a part of the Department of Homeland Security, in the management of border station construction, including strategic planning, budgeting, and design guidance. By developing solutions to meet the needs of the CBP, GSA works to enhance the security and safety of borders of the United States (U.S.).

In 2002, GSA began a formal examination of the Andrade Port of Entry (POE) to determine needs for CBP facilities now and in the future. Basic deficiencies of the existing border crossing facilities in handling existing pedestrian and vehicular traffic were identified as follows:

- The Andrade POE's main building can no longer accommodate the volume of pedestrians that pass through the POE on a daily basis.
- The pedestrian crosswalk area is hazardous and needs to be improved to provide safer walking conditions to and from the main building.
- Nearly all buildings at the Andrade POE exhibit serious deterioration that requires repair or replacement.

The primary reason to improve the Andrade POE is a safety concern about the high volume of pedestrians who park at the nearby the Quechan Tribe parking lot and cross the border into the Mexican town of Algodones for pharmaceuticals, medical services, entertainment, and shopping. Many of these pedestrians are senior citizens with limited mobility who must cross as many as four vehicular lanes to return to the U.S. Traffic accidents involving pedestrians and vehicles have been narrowly averted at the State Route (SR) 186 crossing to the Quechan Tribe parking lot. As the volume of vehicle and pedestrian traffic grows at the POE, the capacity of the existing facility is further strained.

Purpose of and Need for Action

The action to be evaluated by this Environmental Impact Statement (EIS) is the proposed expansion, renovation, or replacement of the Andrade POE. It would improve the safety, security, and operations of the POE, and provide better control over illegal activities at the border.

The facility serves vehicular and pedestrian traffic into and out of the Mexican town of Algodones. The existing POE facility is not equipped to provide a level of service consistent with the Federal Inspection Service's minimum standards for processing time and overall operational efficiency. GSA proposes to expand, renovate, or replace this facility in response to an anticipated increase in the flow of both vehicles and pedestrians through the POE. In addition, the current facility layout requires northbound pedestrians to cross both lanes of SR-186 upon exiting the pedestrian inspection facility, impeding vehicle circulation, hindering vehicle inspection efficiency, and presenting a hazard to the pedestrians. The proposed alternatives would eliminate or mitigate these deficiencies.

Location

The Andrade POE is located on the U.S./Mexico border in the south-easternmost corner of California on the Fort Yuma Quechan Indian Reservation (Figure S-1). The nearest urbanized area is Yuma, Arizona, located approximately five miles to the east. Directly adjacent to the POE on the Mexican side of the border is the community of Algodones, Baja California. The Andrade site is approximately 0.5 miles west of the Colorado River. The Alamo and All-American irrigation canals are located to the east and west of Andrade, respectively.

Current Configuration of Facility

The POE functions include inspection facilities for both noncommercial vehicle traffic and pedestrians. The vehicular traffic utilizes three northbound inspection lanes, with the outermost lane used exclusively to process commercial vehicles. There is one southbound vehicle lane. The daily hours of operation are 6:00 A.M. through 10:00 P.M. The POE facilities include a main building, canopies, two inspection booths, a secondary building, a two-pen day kennel, two residences, and support structures.

Decisions to be Supported

The EIS will be used to support GSA's selection of the preferred alternative for future operation of the Andrade POE. No sooner than 30 days after the Final EIS is issued, the GSA will prepare a Record of Decision. In the Record of Decision, the GSA will explain all factors, including environmental impacts, that were considered in reaching the decision and identify the environmentally preferable alternative or alternatives. The GSA may select one of the alternatives or a combination of alternatives analyzed in the EIS.

Public Participation

Scoping for the EIS began with mailing of the Notice of Intent (69 *Federal Register* 1291) to 146 recipients on December 18, 2003, and continued until the end of the comment period on February 9, 2004. A Spanish-language translation of the Notice of Intent was sent to Mexican government authorities. A scoping meeting was held for the general public on January 7, 2004 in Yuma, Arizona. During the public scoping process, a total of 19 individuals and organizations either submitted requests for continued notification about the project or made oral or written comments at the meeting. After the public scoping period, several meetings were held with the Quechan Tribe to discuss their concerns regarding the proposed alternatives. These concerns focused heavily on the loss of parking spaces associated with the alternatives for an expanded facility on the current site and adjacent land. As a result of these meetings, two alternatives were added to the project.

Alternatives

GSA has developed five action alternatives that would meet the purpose and need for the project. Each action alternative consists of a set of renovation, construction, and/or demolition activities, as well as operations. GSA has not selected a preferred alternative pending receipt of public comments.



Figure S-1. Andrade Port of Entry and Surrounding Region

No Action Alternative

Under the No Action Alternative, operation of the Andrade POE would continue at the present facility. The Quechan Tribe parking lot would be unaffected. This alternative would not require the acquisition of any new land; the approximately 1.85 acres occupied by the current facility would continue to be leased from the Quechan Tribe. No construction or demolition would take place. Operations would continue with a staff of approximately 40 employees.

This alternative would not meet GSA's purpose and need. The size and configuration of the facility would result in continued deficiencies in operational efficiency and safety.

Alternative 1: New Facility on Current Site and Adjacent Land to West

Alternative 1 would include construction of a new facility on a site approximately 7.5 acres in size that includes the existing site and additional property north and west of the existing site (Figure S-2). This would require vacating the right of way for SR-186 and leasing portions of the Quechan Tribe parking lot and recreational vehicle park overflow area, in addition to land on which the current POE is situated. Approximately 200 of the 1,044 parking spaces in the Quechan Tribe parking lot would be eliminated by this alternative.

A number of buildings and support elements would be constructed under this alternative, including a main building of approximately 17,000 square feet in size, three inspection lanes for northbound vehicular traffic, fifty employee parking spaces, a 100-foot communications tower and building, parking spaces for permit or visitor parking, water supply and wastewater infrastructure, and a cargo building (approximately 1,300 square feet) with dock. Operations at the new facility would require a staff of approximately 80 employees.

There are two variants within this alternative, differing primarily in traffic flow direction. New bridges over the Alamo Canal, as well as a new vehicular inspection facility in Mexico, are required for this alternative to work.

Alternative 2: New Facility on Current Site and Adjacent Land to East

Alternative 2 would also include construction of a new facility on a 7.5-acre parcel that includes the existing site (Figure S-2). However, instead of expanding the facility west onto the Quechan Tribe parking lot, the western edge of the Alamo Canal would be filled to allow a foundation for the facility to the east. The area to be filled would extend approximately 1,000 ft along the canal, extending up to 100 ft into the canal. A 15-ft-high bulkhead would be constructed along the edge of the canal to stabilize and maximize the usable construction area. The Quechan parking lot area would remain the same under this alternative.

The buildings and support elements that would be constructed under this alternative are the same as those listed for Alternative 1. Operations would require a staff of approximately 80 employees. The configuration of the facility would be the same as Alternative 1 Variant A.

Alternative 3: New Facility on Peninsula

Alternative 3 proposes the construction of a new facility approximately one-quarter mile east of SR-186 on the peninsula east of the Alamo Canal (Figure S-2). Approximately 12 acres of land leased from the Quechan Tribe would be required to accommodate the new POE. Approximately

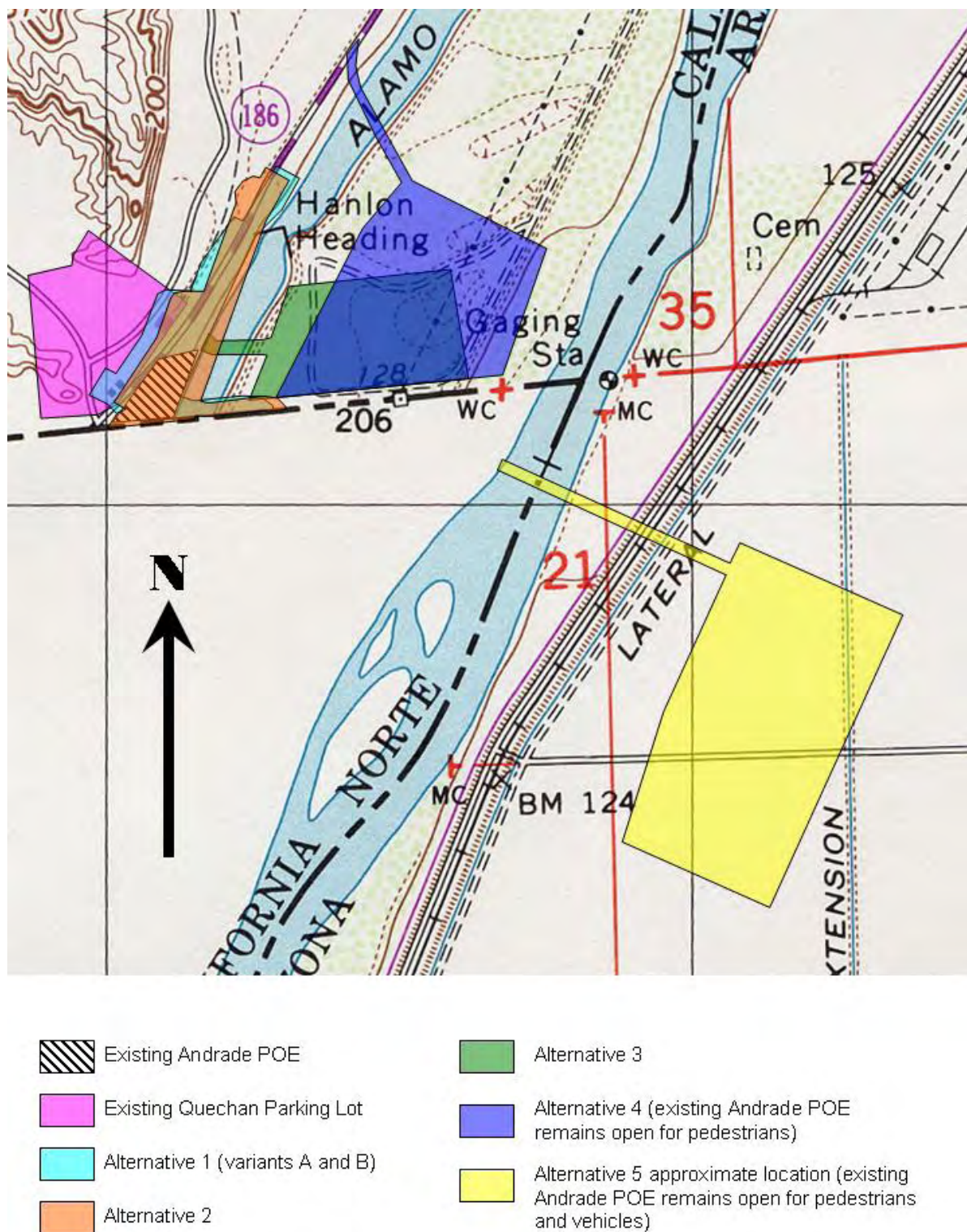


Figure S-2. Generalized Overview of Alternative Locations

1 acre of land north of the current POE would be leased from the Quechan Tribe to accommodate a new roadway connecting to SR-186, a bridge, and a pedestrian walkway. The new bridge over the Alamo Canal would accommodate all vehicular and pedestrian traffic. The existing port would be closed, buildings demolished, and land returned to the Quechan Tribe.

The buildings and support elements that would be constructed under this alternative are the same as those listed for Alternative 1. Operations would require a staff of approximately 80 employees. The configuration of the new POE would be the same as Alternative 1 Variant A.

Alternative 4: New Facility on Peninsula for Vehicles Only

Alternative 4 proposes the construction of a new facility on the peninsula east of the existing POE facility, across the Alamo Canal (Figure S-2). As with Alternative 3, approximately 12 acres of land would be leased from the Quechan Tribe to accommodate the new POE. However, the current facility would continue operation with reconfiguration as a pedestrian-only port. A new bridge over the Alamo Canal would accommodate all vehicular traffic and CBP personnel walking or driving between the two facilities. Approximately 1 acre of land north of the current POE would be leased from the Quechan Tribe to accommodate a new roadway connecting to SR-186 and the new bridge. The bridge over the Alamo Canal would accommodate all vehicular traffic and CBP foot traffic.

The buildings and support elements that would be constructed under this alternative would be similar to those listed for Alternative 1. Minor demolition and construction would take place at the existing facility as part of the reconfiguration to pedestrian-only operations. Operations at both the existing facility and the new facility would require a staff of approximately 80 employees.

Alternative 5: New Facility in Arizona for Vehicles Only

Alternative 5, as with Alternative 4, calls for two facilities. The Andrade POE would continue its current operating profile. A second port would be constructed to the east of the Colorado River, connecting Mexico with Arizona via a bridge (Figure S-2). A new connecting roadway would provide access to Somerton Avenue, west of Yuma. This alternative would require cooperation and funding from the Arizona Department of Transportation, City of Yuma, County of Yuma, the International Boundary and Water Commission, the Bureau of Reclamation, and the U.S. Army Corps of Engineers. Approximately 50 acres of land, most of which is privately owned, would be purchased to accommodate the new facility, bridge, and connecting roadway. As with every new POE, a Presidential Permit would have to be obtained before construction.

It is anticipated that the majority of privately-owned vehicles and all commercial traffic would be rerouted to the new POE, leaving the Andrade POE primarily for pedestrian crossings; however, privately-owned vehicles would not be prohibited from using the Andrade POE.

The buildings and support elements that would be constructed under this alternative are the same as those listed for Alternative 1. Operations at both the existing facility and the new facility would require a staff of approximately 100 employees.

Affected Environment

The project area comprises the existing Andrade POE and the areas that would be used for construction and operation of the five action alternatives. A region of influence is defined for

each resource area, which includes the project area, at a minimum. Some resource areas have regions of influence that extend beyond the project area.

Geology and Soils. The ROI is within the basin and range lowlands province of southwestern Arizona near Yuma. Mineral resources near the project area are limited. A gravel quarry on the northwest side of Pilot Knob, approximately 2 miles northwest of the Andrade POE, was established for repair of the Alamo Canal in about 1906. No other mineral resources are known to be present in the project area.

The project area lies in an area of high ground-shaking potential. The project area is subject to ground shaking from earthquakes originating in southern California and northern Mexico. On average, earthquakes are felt in the Yuma Region once per year. Historically, earthquakes originating in the Imperial Valley region of southern California have resulted in some damage to the Yuma region. Liquefaction damage resulting from ground shaking is a serious threat in the valleys of the Yuma region. The project area is generally too flat to be affected by mass movements such as rockfalls and landslides, although the potential for these exists in steeper areas along the banks of the Colorado River and Alamo Canal.

Flash flooding is unlikely in the project area because of drainage control at upstream dams and reservoirs along the Colorado and Gila rivers. Surface subsidence, caused by the collapse of subsurface voids or by the withdrawal of large amounts of groundwater over large areas, is not common in the geologic layers underlying the project area.

Water Resources. The Yuma Valley is an arid region with one principal waterway, the Colorado River. Average flow in the river near the intersection of the California, Arizona, and Mexico borders is 4,520 cubic feet per second. Water is diverted from the Colorado River to Mexico at the Morelos Dam, located 1.1 miles downstream from the intersection of the California, Arizona, and Mexico boundaries, immediately south of the project area.

Overall water quality in the Colorado River is good. Problems of increased salinity in the Colorado River arose in the early 1960s, but salinity was reduced through construction of a bypass channel.

The Colorado River floodplain is approximately 0.25 miles wide in the ROI. The floodplain is designated as “Zone A” by the Federal Emergency Management Agency, “areas of 100-year flood; base flood elevations and flood hazard factors not determined.” The Andrade POE and peninsula area are approximately 15 feet above the average water level of the Colorado River and Alamo Canal. The chances of flooding at the current Andrade POE or the sites of the alternatives are considered remote.

A number of irrigation canals are present in the Andrade area. The All-American Canal, 82 miles long and 0.4 miles west of the current POE at its closest distance, currently transports water from the Colorado River to the Imperial Valley.

A biological survey determined that there are no jurisdictional wetlands within the ROI. Hydrophytic vegetation is confined to narrow strips along the edges of the Alamo Canal and Colorado River.

The site is underlain by hydrologic units that are highly transmissive and productive. Well yields are generally high, although surface water from the Colorado River supplies the majority of water use in the Yuma area. Records of historical groundwater levels in the project area show that water levels have remained largely unchanged. Depth to groundwater ranges from 5 to 20

feet below the surface. In general, the quality of groundwater in the Andrade POE area is marginal for domestic and irrigation uses because of elevated levels of total dissolved solids, chloride, sulfate, and percent sodium.

Land Use. The Fort Yuma Indian Reservation consists of 44,000 acres and is the second largest reservation in the state of California. Land development decisions are made on the basis of compatibility with existing land uses. Prominent land developments to date include the Paradise Casino and approximately 700 acres of leased land used for agriculture.

The construction sites under Alternatives 1 through 4 would be located in the southwestern portion of the Fort Yuma Indian Reservation. With the exception of the Quechan parking lot, this land is not currently utilized for economic activity.

The area that would be occupied by the POE and access road under Alternative 5 is currently utilized and designated in the Yuma County 2010 Comprehensive Plan as agricultural land, and classified by the Natural Resources Conservation Service as prime farmland.

Biological Resources. Vegetation in the ROI consists mostly of native and invasive species growing on disturbed land near and on the property of the existing port, the peninsula area, and along the east side of the Colorado River. Common species include tamarisk (salt cedar), common reeds, saltbush, mesquite, and coyote bush. Land east of the Colorado River levee, site of the facility under Alternative 5, is cultivated with row crops. East of the Colorado River, between the river and levee, are cottonwoods, willows, arrow weed, tamarisk, mulefat, atriplex, and mesquite. There has been some refuse dumping in this area and evidence of fires.

Wildlife habitat in the ROI includes sparse, dry Sonoran desertscrub communities on flat, upland areas, and riparian-wetland complexes along the Colorado River. A number of common mammal, bird, and reptile species are known or likely to be present in the ROI. Although there are no managed fisheries in the ROI, there are viable fish populations in the Colorado River that include largemouth bass, striped bass, crappie, sunfish, channel catfish, flathead catfish, and tilapia.

Based on habitat features of the ROI and habitat affinities, special-status species with the potential to occupy suitable habitat in the ROI are the southwestern willow flycatcher, Yuma clapper rail, great egret, snowy egret, California black rail, western yellow-billed cuckoo, and flat-tailed horned lizard. With the exception of the great egret and snowy egret, which were identified in the Alamo Canal during a biological survey of the site, habitat in the ROI appears to be marginal for these special-status species.

Cultural Resources. A cultural resource inventory was conducted of the project areas associated with all of the alternatives. Eight resources, comprised of seven historic-aged architectural/engineering properties and one isolated prehistoric artifact, were identified within the project areas. The isolated artifact is recommended as not eligible for the National Register of Historic Places. Five of the seven properties are recommended as eligible to the National Register of Historic Places, and the remaining two are of undetermined eligibility. Consultation with 21 Native American groups and Tribes in the area to identify concerns for potential impacts to important traditional resources within the project areas is on-going. To date, no traditional resources of importance have been identified.

Visual Resources. The general area is characterized by an alluvial valley along the course of the Colorado River. The project area is relatively flat with Pilot Knob rising approximately 740 feet

above the current POE approximately 2 miles to the northwest. Mountain ranges are visible across the Yuma Valley approximately 20 miles to the east.

The project area contains significant non-native vegetation (particularly on the Fort Yuma Indian Reservation). Areas actively patrolled by the CBP have been denuded of vegetation. In the Arizona portion of the project area, land is used primarily for cultivation of row crops, although structures associated with the desalinization plant are located approximately one-half mile north of the site of Alternative 5. The Colorado River floodplain contains scattered, small willows and cottonwoods. The width of the floodplain is controlled by a large levee to the east.

There are no eligible or officially designated California Scenic Highways, Arizona State Byways, or Wild and Scenic Rivers in the surrounding area. There are no substantial facilities for recreational use (e.g., hiking or bicycle trails, parks).

Infrastructure. Infrastructure consists of buildings, utilities, and transportation corridors that support the operations of a facility. The Andrade POE facilities consist of three single-story buildings. In addition, there are a number of portable storage units, and a day-kennel.

The Quechan Tribe parking lot is located west of SR-186 across from the Andrade POE. The Quechan Tribe charges a fee to the public for parking. Currently, there are approximately 1,044 parking spaces available. Additionally, vehicles park illegally along both sides of SR-186.

Water for the POE is supplied by two six-inch wells located on the north edge of the facility, one for landscaping and one for sanitary uses. These wells are approximately 200 feet deep. Recently, water samples were found to be contaminated by fecal coliform. As a result, bottled water is regularly delivered for drinking and hand washing.

Sewage generated by the facility flows into a 3,000-gallon septic tank and then to a disposal field with four 100-ft lines near the Alamo Canal. Wastewater flow from the facility is estimated at 2,500 gallons per day. CBP has expressed concerns regarding capacity limits and effectiveness of this system given the increased use of restroom facilities by pedestrians; the sewer capacity effectively restricts expansion or addition of restrooms at the facility.

The electrical service connection for the Andrade POE is provided by the Imperial Irrigation District overhead line along SR-186. Electricity is used for all heating and air conditioning. During 2003, electrical use was approximately 280,000 kilowatt hours.

Traffic. The major transportation route in the Yuma area is I-8. Near Yuma, annual average traffic volumes on I-8 range from 9,544 to 34,463 vehicles per day. Because of the high number of winter visitors in the area, seasonal variations in traffic volume of up to 125 percent have been noted in some portions of Yuma, with peak traffic in the months of January through March. From 1993 to 2000, summer traffic increased by 15 percent and winter traffic increased by 16 percent.

The sole access for vehicles to reach the Andrade POE is via SR-186, a two-lane road that runs north/south and is approximately 2.1 miles in length. Traffic counts conducted in 2003 record an annual average of approximately 7,600 vehicles per day using this road (each direction), nearly all bound for or returning from Mexico or the Quechan parking lot. The vast majority of these vehicles are privately-owned. During peak times, especially in the winter months, southbound vehicle traffic will back up along SR-186, occasionally as far as I-8.

Air Quality. The city of Yuma is in attainment with all of the National Ambient Air Quality Standards and the Arizona Ambient Air Quality Guidelines, except for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM₁₀). Although the city of Yuma has been designated as nonattainment for PM₁₀, monitoring data have demonstrated compliance with the standard since 1990.

All of Imperial County is classified within the Salton Sea air basin. As of 2004, the Salton Sea air basin has been designated as an attainment area by the U.S. Environmental Protection Agency.

Existing emission sources include the emissions from traffic on I-8, open burning and other agricultural operations, and the air pollution that is carried into the area from other regions, including Mexico. Projects in the region affecting the air quality in the vicinity of the project include the Arizona Public Service Yucca Power Plant and the Yuma Cogeneration Associates plant. Both facilities are located on the west side of Yuma.

Yuma has a classic low-desert climate with extremely low relative humidity and very high summer temperatures. Average summer highs exceed 100°F for 4 months; winter average maximum temperatures range from 60°F to 80°F. Yuma receives less than 4 inches of precipitation annually, often arriving in several strong showers.

Noise. Vehicular traffic along I-8, north of the project area, SR-186, and traffic within and near the city of Yuma, and agricultural equipment contribute to the existing noise levels in the area. There are no sensitive noise receptors (e.g., residences, schools) within 0.5 miles of the project area.

Human Health and Safety. Hazards faced by workers at the Andrade POE include injuries that could be sustained from collisions with moving vehicles, lifting and moving equipment, and contact with hazardous substances during inspections.

Despite inadequacies of the present facility to segregate pedestrian and vehicle traffic streams, there have been no reported traffic-related injuries to pedestrians or workers since at least 2002. Seven reported worker injuries occurred during Fiscal Year 2004. These included one eye injury, 2 shoulder injuries, 2 back injuries, and 2 leg/knee injuries that were incurred during the performance of normal work functions.

Socioeconomics. The Yuma Metropolitan Statistical Area includes all of Yuma County and the Fort Yuma Indian Reservation. The current Andrade POE and alternatives are located within this area, and the majority of workers at the POE would be expected to reside in this area.

The county and city of Yuma is growing rapidly. In the city of Yuma, the population increased from 54,923 in 1990 to 77,515 in 2000, a net increase of 41 percent during the 10-year period.

The population of Yuma County is 68.3 percent white, with 50.5 percent of persons reporting themselves as being of Hispanic (including Latino) origin. American Indian and Alaska Native persons comprised 1.6 percent of the Yuma County population in 2000. Twenty-four percent of the county's population is foreign born, almost twice the percentage for Arizona residents as a whole. Over 45 percent of county residents speak a language other than English at home.

Yuma County provides a variety of municipal type community services including public housing, public health, public safety, a roads department, and the solid waste utility. The City of Yuma provides the full range of community services to its residents including water, sanitary

sewer, and solid waste utilities, law enforcement and fire protection, and recreation and library services.

Major employment sectors include agriculture, tourism, and the military. The unemployment rate of Yuma County is significantly higher than the state unemployment rate, hitting a high of over 24 percent in 2002. The State of Arizona unemployment rate for the year 2002 was under 5 percent.

Per capita income for Yuma County was \$16,839 in 2001, while the State of Arizona per capita income was \$25,878. For 1999, the per capita income for the Fort Yuma Indian Reservation was \$8,402. In 2000, 15.5 percent of Yuma County families and 19.2 percent of individuals were classified as living in poverty, based on the national poverty threshold.

Environmental Justice. “Minority” refers to people who classified themselves in the 2000 Census as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of any race or origin, or other non-White races. Minorities make up 55.7 percent of the population of Yuma County. Percentages of minority populations for the Fort Yuma Indian Reservation and neighborhoods of western Yuma show that minority populations are significantly greater than Yuma County as a whole.

In 1999, the poverty-weighted average threshold for an individual was \$8,501. In Yuma County, 19.2 percent of individuals are below the poverty level. The Fort Yuma Indian Reservation and census tracts in western Yuma have poverty levels significantly greater than Yuma County as a whole.

Environmental Consequences

This section summarizes the environmental effects (both positive and negative) of the five action alternatives and the No Action Alternative. There is also a description of the cumulative impacts of the action alternatives, defined as impacts that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

Geology and Soils. There are no unique geological features at any of the proposed construction sites covered by the alternatives. Sand and gravel are the only known mineral resources near the site. However, no sand or gravel mining occurs on or near the site. The proposed facility design would take local seismic risk into consideration to avoid/mitigate potential damage to project components.

All action alternatives would lessen soil impacts through placement of erosion control measures. Impacts to soils would be low to moderate, transitory, and overall positive for long-term stabilization.

Under the No Action Alternative, no impacts to geologic resources or soils were identified.

Water Resources. Under Alternatives 1 through 4, stormwater runoff generated on the project site would drain directly to the Alamo Canal. Increases in the area of impermeable surface would result in higher runoff quantities, but no impacts would be expected from runoff. Stormwater runoff generated on the project site under Alternative 5 would drain to a network of ditches within the northwest portion of the Yuma Valley. No impacts would be expected.

Under Alternatives 1 through 4, no jurisdictional water courses would be disturbed as a result of construction or operation of the project. Under Alternative 5, construction and operation of the

bridge over the Colorado River could disturb river flow. The Colorado River qualifies as a jurisdictional watercourse. This would be a significant impact. Mitigation measures would include placing bridge support pillars outside of the Colorado River floodplain.

Under any of the alternatives, groundwater would be used for all domestic water functions with the exception of drinking. A vendor would deliver drinking water to the facility. Water use would increase incrementally at the facilities proposed under any of the action alternatives due to an increase in the number of employees and larger landscape area. High transmissivity within the underlying aquifer combined with nearby surface water bodies result in ample groundwater supply for the facility without significant impact to nearby wells.

Each alternative encompasses enough area for emplacement of a septic tanks and construction of a leachfield at a minimum of 100 ft downgradient from the water supply well. Leachfield discharge would not contaminate water supply systems. No significant impacts to groundwater quality are anticipated.

Under the No Action Alternative, current environmental conditions and impacts would be similar to those discussed for the Affected Environment.

Land Use. Under Alternatives 1 through 4, the main facility and all ancillary structures would be completely contained within the Fort Yuma Indian Reservation. The land under consideration for development ranges from approximately 7 acres under Alternatives 1 and 2 to 12 acres under Alternative 4. Any action to construct the project would require the assent and cooperation of the Quechan Tribal Council to negotiate a lease agreement; any of the alternatives assented to by the Council would not result in significant impact to land use.

The land under consideration for title transfer under Alternative 5 is the 50 acres of privately-owned farmland for the proposed main-facility site and approximately 2 acres of U.S. Bureau of Land Management-owned land along the Colorado River. Land use for other acreage in the vicinity of the project could change substantially as a result of construction of the vehicle POE from its existing agricultural use. The farmland to be acquired is currently being farmed, and has been designated as prime farmland. Because land use under the project conflicts with local land use plans, and would result in the permanent elimination of approximately 50 acres of prime farmland, construction of the project under Alternative 5 would result in a significant and unavoidable adverse impact to land use.

Under the No Action Alternative, no conflict with land-use plans would occur. There would be no significant impact to land use.

Biological Resources. Construction of the project under Alternatives 1 through 4 would permanently remove from 4 to 14 acres of plant communities and replace them with structures and ancillary facilities. Loss of this acreage of plant communities, nearly all of it on disturbed land, would not be a significant impact. Under Alternative 5, construction of the project could temporarily disturb approximately 2 acres of plant community along the Colorado River as bridge-construction equipment would likely use the area. Less than 1 acre of plant community would be permanently lost as a direct effect of the placement of bridge support structures. Temporary disturbance of approximately 2 acres of this plant community from construction, or permanent loss of less than 1 acre, much of it degraded by past activities such as levee construction, would not be a significant impact.

The project would result in short-term effects on wildlife due to displacement or direct mortality associated with construction and maintenance of project facilities, and long-term effects from loss of habitat from permanent project facilities. The potential small losses of wildlife that would be killed directly from construction activities or displaced would be insignificant in a regional context.

Under Alternatives 1 through 4, the project would not affect fish or habitat in the Colorado River. Sediment from construction activities would not affect water quality in the river as construction-related runoff would be controlled by berms or other structures. Under Alternative 5, there is no direct discharge point to the river from the site of the main facility construction. Bridge construction could result in deposition of sediment in the Colorado River. The techniques and timing of bridge construction activities would be coordinated with the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department to avoid impacts to fisheries.

Under Alternatives 1 through 4, no special-status plants were identified or are expected to occur in the ROI. Under Alternative 5, no special-status plants are expected to occur in the area of the main facility; however, construction activities related to the bridge could disturb mesquite, of which a variety (*Prosopis glandulosa* var. *torreyana*) is a salvage-assessed plant under the Arizona Native Plant Law. This variety of mesquite would be avoided or transplanted to avert destruction or disturbance, where practicable. Construction under any of the action alternatives could temporarily displace special-status birds, but would not be expected to cause direct mortality or disturb nesting areas.

Under the No Action Alternative, existing conditions of biological resources in the area would be maintained. Habitat would remain in its present state. Commercial and governmental activities would continue in the ROI with no expected impacts to biological resources.

Cultural Resources. The identification of properties eligible for the National Register of Historic Places is preliminary. Further consultation with interested Tribes, involved agencies, and the California and Arizona state historical preservation officers could result in an increase or decrease in the number of eligible properties, affecting the level of impacts. The current assessment of impacts is based on the preliminary eligibility recommendations.

The locations of known eligible properties were compared to proposed locations of construction and maintenance activities for the five action alternatives and the No Action Alternative to determine if there would be a potential for significant impacts. Under Alternative 1, one property would be significantly impacted. For Alternative 2, significant impacts would occur to two properties. The proposed activities for Alternative 3 would impact two properties. Under Alternative 4, two properties would be significantly impacted. Alternative 5 activities would impact no properties. The No Action Alternative would result in no impacts to any properties. For all of the alternatives, mitigation of the impacts to the properties would be conducted. This mitigation would include detailed recording of the properties and their historic contexts, and limited archaeological excavation, conducted to National Park Service standards. However, although the potential impacts would be mitigated prior to conducting construction activities, the significant impacts to the properties would remain.

Visual Resources. Under the action alternatives, the visual impact of the project would be primarily from the above-ground structures: several one-story buildings, covers over the inspection areas, and support buildings. The project would be painted using desert shades and earth tone colors to minimize contrast with the surrounding area. The residual visual impact of

construction of the project would be small and insignificant because the existing visual resources are already altered from their natural state, and the visual changes introduced would not substantially modify the overall visual character of the area.

Under the No Action Alternative, there would be no impact to the existing visual resources in the area.

Infrastructure. Under any of the action alternatives, the primary water source for the facility would be groundwater pumped from onsite wells. Drinking water would be trucked to the facility by a commercial water supplier. No impacts to water supply infrastructure would be anticipated.

Under any of the action alternatives, electrical use at the proposed facility is estimated at 877,000 kilowatt hours per year. For comparison, average household electrical use in Arizona during 2000 was 13,067 kilowatt hours. Under Alternatives 4 and 5, electrical use would continue at the current facility, consuming approximately 280,000 additional kilowatt hours per year. This would not result in a significant impact to the electrical supply within the area, although an additional electrical supply line may be required from the nearest substation.

Under the No Action Alternative, water and electricity use would continue at current levels. No impacts to water or electric infrastructure would occur.

Traffic. During operation under Alternative 1, the number of northbound inspection lanes would be increased from two to four (Variant A) or three (Variant B), providing for increased vehicle inspection efficiency. This would result in a predicted maximum peak-hour northbound queue length in 2025 of 49 vehicles (980 feet) under Variant A or 127 vehicles (2,540 feet) under Variant B. Maximum individual vehicle wait times would be 9.4 and 33 minutes under Variant A and Variant B, respectively.

During operation under Alternative 2, the number of northbound inspection lanes would be increased from two to four, resulting in a predicted maximum peak-hour northbound queue length in 2025 of 49 vehicles (980 feet). Maximum individual vehicle wait times would be 9.4 minutes.

During operation under Alternatives 3 and 4, the number of northbound inspection lanes would be increased from two to three, resulting in a predicted maximum peak-hour northbound queue length in 2025 of 127 vehicles (2,540 feet). Maximum individual vehicle wait times would be 33 minutes.

Under Alternative 5, it is anticipated that a majority of privately-owned vehicle traffic would be routed through the new POE. Maximum peak-hour queues for 2025 are calculated at 14 (280 feet) and 18 vehicles (360 feet) at the existing facility and new facility, respectively. Maximum individual vehicle wait times would be 8.8 minutes at the existing facility and 5.5 minutes at the new facility.

Unlike Alternatives 1 through 4, Alternative 5 would place some burden on the Yuma County and city of Yuma transportation infrastructure. In particular, approaches to the POE on West 8th Street and Somerton Avenue would experience additional traffic. This volume of traffic would not result in significant additional congestion on Yuma County or city of Yuma streets.

Under the No Action Alternative, the peak hourly traffic volume would increase to 337 vehicles per hour in 2025, with a corresponding queue length of 205 vehicles (4,100) feet and a maximum

wait time of 79 minutes. This could significantly impact the transportation infrastructure within Algodones.

Air Quality. Any of the action alternatives would result in the expansion of northbound inspection capacity. This expansion would provide for improved inspection efficiency and pedestrian safety at the POE, and decreases in queuing time with corresponding decreases in idling vehicle emissions. The comparison of emission rates shows a decrease compared to current rates by 2025 under every alternative, including the No Action Alternative, despite projected increases in traffic. Much of the decrease can be attributed to anticipated improvements in vehicle pollution-control systems.

Noise. Although noise would be produced during construction activities for the project, this is expected to be short term (i.e., limited to the months during active construction). Construction activities would occur only during the daytime. The noise created during the construction activities would exceed the U.S. Environmental Protection Agency guidelines for short periods of time. However, this is not considered a significant impact due to the limited period of noise generation during each day combined with the limited period of the construction activity overall.

Operation of the project would result in noise from vehicles starting, stopping, running at low speeds, and idling. Inspection activities generate a relatively small amount of noise including speaking, opening and closing of building doors, and closing of car doors and trunks.

The No Action Alternative would result in no change to the existing noise levels in the area.

Human Health and Safety. The level of risk to construction workers increases in relation to the amount of new construction required. All applicable Occupational Safety and Health Administration and Arizona Division of Occupational Safety and Health codes for health and safety would be implemented for all identified and anticipated hazards to worker health and safety, providing for basic standards of worker health and safety. The residual health and safety impacts of construction to workers would be small and insignificant because there would be no worker hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

Worker health and safety issues during operation of the proposed facility would primarily be typical industrial work-related injuries such as bruises, cuts, falls, and repetitive stress injuries. All applicable Occupational Safety and Health Administration codes for health and safety, including electrical design standards, would be implemented for all identified and anticipated hazards to worker health and safety, providing for basic standards of worker health and safety during facility operations. The overall design, layout, and operational protocols of the project would minimize occupational hazards and injuries. The residual health and safety impacts of operation of the proposed facility would be small and insignificant because there would be no worker hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

Potential health impacts to the public from construction of the project include fugitive dust typical of construction sites and noise. Dust control measures would be implemented to reduce the health risk. Public health impacts from construction activities would be short term and minimal due to low population density surrounding the components of the project.

The separation of pedestrian and vehicle traffic, common to all of the action alternatives, would reduce the risk of pedestrian injury.

Under the No Action Alternative, the potential for construction accidents or worker or public exposure to additional amounts of fugitive dust and noise associated with the project would not occur.

Socioeconomics. The project would not cause any noticeable change in existing demographic characteristics within the socioeconomic ROI. Under Alternatives 1 through 4, construction of the project is anticipated to span a period of 12 to 18 months requiring a range of 30 to 50 employees, depending on the construction phase. Approximately 80 permanent workers would be needed to operate the facility. Under Alternative 5, approximately 150 workers would be required for an estimated 12 to 18 months, and a maximum of 60 permanent workers (above the current workforce) would be required for project operation. The project would not create a noticeable change in population or employment, or create significant strains on housing availability or community services within the ROI.

Under the No Action Alternative, increasing pressure would be put on the Andrade POE, commensurate with population growth in Yuma County. Though border crossing congestion would be an inconvenience to many Yuma area residents, it would be unlikely to affect population growth trends, the economy, housing, and community services in the ROI.

Environmental Justice. The siting of Alternatives 1 through 4 on the Fort Yuma Indian Reservation is relevant to the analysis of environmental justice considerations. Though the project would generate traffic and resultant effects to air quality, construction of the project is anticipated to improve traffic flow and air quality from the present conditions. Under any of these alternatives, the border crossing would remain accessible from the Quechan parking lot, thus having little or no effect on resulting Tribal economic activity. The loss of 200 parking spaces under Alternative 1 would be compensated during lease negotiations. No environmental justice impacts are anticipated.

Under Alternative 5, streets passing through a minority-dominated area of west Yuma would experience an increase in traffic. However, this additional traffic is not considered a significant impact, and no environmental justice impacts are anticipated. The movement of the vehicular POE to the Arizona side of the Colorado River could have a socioeconomic impact on the Fort Yuma Indian Reservation. It is unclear whether this would be a negative or positive impact. Without a vehicular POE, the Quechan parking lot could see a reduction in use as some visitors to the Yuma area may not realize the POE still functions as a pedestrian facility. Permanent or seasonal residents living in Yuma could find the new POE more convenient, depending on measures taken by the city government or businesses in Algodones to improve access to their community (e.g., construction of a parking lot in Algodones). Conversely, improvements in safety at the pedestrian POE could attract additional area residents to the Quechan parking lot. Overall, this analysis concludes that any change to number of users of the Quechan parking lot would be small; the socioeconomic effect to the Fort Yuma Indian Reservation would not be significant.

Under the No Action Alternative, operations would continue at the current Andrade POE. There would be no impacts to minority or low-income populations.

Cumulative Impacts. Actions by others in the region include the construction of a hotel/casino by the Quechan Tribe at the southwest corner of the I-8/SR-186 interchange, and overall continued population growth in the Yuma area. This size of the Quechan hotel/casino is estimated at 295,000 square feet and it will be located on a 22-acre site. There will be 1,500

parking spaces, stormwater facilities, a wastewater treatment facility, and water supply infrastructure. Approximately 800 to 1,000 people will be employed at the facility. It is anticipated that construction of the hotel/casino will begin within the next year.

Very little of the project area has remained unaffected by construction or other ground disturbing activities. These developments have likely disturbed cultural resources. Continued future development in the ROI is likely. These future activities could have impacts to cultural resources similar to those from past projects and the project. The proposed hotel/casino could also result in disturbance to cultural resources, though it is likely that that project area is already somewhat disturbed. Under Alternatives 1 through 4, the project would likely result in impacts to historic-age architectural and engineering resources. These impacts would be similar to those that have already occurred and to those that would likely occur in the future. The impacts from the any of these alternatives would be additive to those contributing to an overall cumulative impact. Under Alternative 5, there would be no cumulative impacts to cultural resources as the levee would not be impacted by the project nor other known projects.

Under Alternative 5, the combination of the project and continued area population growth would likely result in traffic congestion along West 8th Street in Yuma, a predominantly minority and low-income area. This congestion could result in decreased property values and inconvenience for residents accessing their homes and apartments. This is potentially a significant cumulative impact.

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ACRONYMS

AGFD	Arizona Game and Fish Department
BEA	United States Bureau of Economic Analysis
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CBP	Bureau of Customs and Border Patrol
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dBA	A-weighted sound level
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	<i>Endangered Species Act</i> of 1973
FEMA	Federal Emergency Management Agency
FR	Federal Register
GSA	General Services Administration
IBWC	International Boundary and Water Commission
L _{dn}	day-night average noise level
L _{eq}	equivalent sound level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PM ₁₀	particulate matter smaller than 10 microns in diameter
POE	Port of Entry
POV	privately-owned vehicle
RIMS	Regional Input-Output Modeling System
SHPO	State Historic Preservation Officer
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan

TCP	traditional cultural property
U.S.	United States
U.S.C.	United States Code
USDA	United States Department of Agriculture
USGS	United States Geological Survey

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1 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

The General Services Administration (GSA), through its Border Station Program, assists the Bureau of Customs and Border Protection (CBP), a part of the Department of Homeland Security, in the management of border station construction, including strategic planning, budgeting, and design guidance. By developing solutions to meet the needs of the CBP, GSA works to enhance the security and safety of borders of the United States (U.S.).

In March 2003, GSA completed the *Andrade United States Port of Entry Feasibility Study, Andrade, California* (GSA 2003), to examine the Andrade Port of Entry (POE) and determine needs for CBP facilities now and in the future. The Feasibility Study was conducted after recognizing basic deficiencies of the existing border crossing facilities in handling existing pedestrian and vehicular traffic:

- The Andrade POE's main building can no longer accommodate the volume of pedestrians that pass through the Port on a daily basis.
- The pedestrian crosswalk area is hazardous and needs to be improved to provide safer walking conditions to and from the main building.
- Nearly all buildings at the Andrade POE exhibit serious deterioration that requires repair or replacement. Affected areas include architectural, structural and civil elements, electrical, security and mechanical systems, and existing water utilities.

The primary reason to improve the Andrade POE is a safety concern about the high volume of pedestrians who park at the nearby the Quechan Tribe parking lot and cross the border into the Mexican town of Algodones for pharmaceuticals, medical services, entertainment, and shopping. Many of these pedestrians are senior citizens with limited mobility who must cross as many as four vehicular lanes to return to the U.S. Traffic accidents involving pedestrians and vehicles have been narrowly averted at the State Route (SR) 186 crossing to the Quechan Tribe parking lot. As the volume of vehicle and pedestrian traffic grows at the POE, the capacity of the existing facility is further strained.

Other current and impending problems at the Andrade POE include:

- Privately-Owned Vehicles (POVs) are currently queuing into residential neighborhoods in Mexico, creating traffic congestion, air quality degradation, and safety concerns.
- The facility is not equipped to handle commercial vehicle inspections. Although commercial traffic is currently light, the inspections add to the congestion of the Port and the approaches.
- The facility cannot properly accommodate the current number of bus crossings. An initiative to increase bus tours along the Baja California coast has been proposed by the Mexican Government and if successful will increase bus traffic at this port.
- The California Department of Transportation (Caltrans) has expressed concern for the future level of traffic and reported that SR-186 may be widened in the future to a four

lane conventional highway. This would likely increase traffic and the strain on the Andrade POE.

- All of the CBP agencies currently located at the Andrade POE have requested additional space. In addition, agencies not currently located at Andrade anticipate the need for space there within the next ten years.

1.2 Purpose of and Need for Action

The action to be evaluated by this Environmental Impact Statement (EIS) is the proposed expansion, renovation, or replacement of the Andrade POE. It would improve the safety, security, and operations of the POE, and provide for better management of border activities.

The facility serves vehicular and pedestrian traffic into and out of the Mexican town of Algodones. The existing POE facility is not equipped to provide a level of service consistent with the Federal Inspection Service's minimum standards for processing time and overall operational efficiency. GSA proposes to expand, renovate, or replace this facility in response to an anticipated increase in the flow of both vehicles and pedestrians through the POE. In addition, the current facility layout requires northbound pedestrians to cross both lanes of SR-186 upon exiting the pedestrian inspection facility, impeding vehicle circulation, hindering vehicle inspection efficiency, and presenting a hazard to the pedestrians. The action alternatives evaluated in this EIS would eliminate or mitigate these deficiencies.

1.3 Location and Description of Facility

The Andrade POE is located on the U.S./Mexico border in the south-easternmost corner of California on the Fort Yuma Quechan Indian Reservation (Figure 1-1). The nearest urbanized area is Yuma, Arizona, located approximately five miles to the east. Directly adjacent to the POE on the Mexican side of the border is the community of Algodones, Baja California. The Andrade site is approximately 0.5 miles west of the Colorado River. The Alamo and All-American irrigation canals are located to the east and west of Andrade, respectively. Other major features of the site area include riparian vegetation along the Alamo Canal, an historic marker and ruins of the Hanlon Crossing, and landforms and hills located on the west side of SR-186 (Figure 1-2).

1.3.1 Site Boundaries

The Andrade POE is located within the boundaries of the Fort Yuma Quechan Indian Reservation (Quechan Tribe) (Figure 1-1). The reservation encompasses approximately 44,000 acres. POE facilities are located along the east side of SR-186 within a triangular shaped parcel included within the right-of-way of SR-186. The land area associated with the current POE facilities encompasses approximately 1.85 acres.

1.3.2 Adjacent Land Use and Development

On the U.S. side of the border, development is sparse. Existing uses include the POE facilities, a pay surface parking lot (paved), a building that was the former site of a retail market (planned for demolition), and a recreational vehicle park. The surface parking lot (located on the west side of SR-186) can accommodate approximately 1,044 vehicles. A number of the spaces are striped for large recreational vehicles. The parking lot has been developed by the Quechan Tribe for



Figure 1-1. Andrade Port of Entry and Surrounding Region



Figure 1-2. Aerial Photo of Andrade Port of Entry and Adjacent Features

travelers wishing to park their vehicles on the U.S. side of the border and walk into the community of Algodones. Businesses in Algodones are oriented primarily toward the needs of visitors from the U.S. There are numerous retail shops, pharmacies, restaurants, and medical and dental offices. Within Algodones, streets are relatively narrow and there is limited on-street parking. This scarcity makes the Quechan parking lot on the U.S. side of the border attractive to Algodones-bound travelers.

1.3.3 Access to the POE

California Interstate 8 (I-8) runs in an east-west direction and connects to SR-186. SR-186 is a two-lane road that runs north/south and is approximately 2.1 miles in length. This route provides southbound and northbound site access.

Northbound vehicular access from Mexico begins with Second Street in Algodones. Second Street has one northbound lane that links to the Andrade POE and expands to three lanes upon entering the U.S. inspection facility. Upon leaving the inspection facility, this road becomes SR-186.

SR-186 does not provide sidewalks for pedestrians. Pedestrians traveling southbound approach the POE along the unpaved shoulder of the highway. To the west of the port is the parking lot owned and operated by the Quechan Tribe. After parking, visitors walk along the only sidewalk into Algodones. Currently, there are no U.S. southbound pedestrian inspection facilities.

Pedestrians traveling northbound on Second Street from Algodones enter a fenced pathway that leads them to the U.S. inspection facility. After exiting the inspection facility, pedestrians cross SR-186 to access the Quechan Tribe parking lot.

1.3.4 Current Configuration of Facility

The POE functions include primary and secondary inspection facility for both noncommercial vehicle traffic and pedestrians. The vehicular traffic utilizes three primary northbound inspection lanes. The outermost lane is used exclusively to process commercial vehicles. Caution is required when using the commercial inspection lane due to the pedestrian cross-traffic. There is one southbound vehicle lane. The daily hours of operation are 6:00 A.M. through 10:00 P.M.

The POE facilities include a main building, primary inspection canopy, secondary inspection canopy, two primary booths, a secondary building, a two-pen day kennel, two residences, and support structures.

The buildings are aligned in a row running north to south parallel to SR-186. The primary canopy is adjacent to the main building and is equipped with two vehicle inspection booths. The secondary canopy is located north of the primary canopy. The secondary inspection area has two bays and a booth for secondary inspection. A one-bay dismantling area has also been setup on the east side of the building. If there is a need to dismantle a vehicle it must be driven against oncoming traffic. The employee parking area located to the east of the main building is very small and double-parking occurs consistently during regular office hours. The employee parking lots are not large enough to accommodate the number of employees working during each shift; however, there is a limited amount of additional over flow parking at the northern end of the facility.

1.4 Objective of the Environmental Impact Statement and Decisions to be Supported

In this EIS, the GSA is examining the environmental impacts of the alternatives for expansion, renovation, replacement, and continued operation of the Andrade POE. The objective of the EIS is to provide the GSA, other agencies, and the public with descriptions of the affected environment, current operation, and potential impacts associated with the expansion, renovation, replacement, and continued operation of the POE under each alternative.

No sooner than 30 days after the Final EIS is issued, the GSA will prepare a Record of Decision. In the Record of Decision, the GSA will explain all factors, including environmental impacts, that were considered in reaching the decision and identify the environmentally preferable alternative or alternatives. The GSA may select one of the alternatives or a combination of alternatives analyzed in the EIS.

1.5 Public Participation

Public participation is integral to the preparation of the EIS. This section summarizes the issues and concerns that were identified during the public scoping process.

Scoping is a process for determining the range of issues to be addressed in an EIS and for identifying significant issues associated with the alternatives (40 *Code of Federal Regulations* [CFR] §1501.7). The objectives of the scoping process are to notify interested persons, Federal,

state, local, and tribal agencies, and other groups about the alternatives being considered; solicit comments about environmental issues, alternatives, and other items of interest; and consider those comments in the preparation of the EIS.

Scoping for the EIS began with mailing of the Notice of Intent (69 *Federal Register* [FR] 1291) to 146 recipients on December 18, 2003, and continued until the end of the comment period on February 9, 2004. A Spanish-language translation of the Notice of Intent was sent to Mexican government authorities. The Notice of Intent was prepared to notify the public that the GSA was intending to prepare an EIS on the future of Andrade POE operations and to invite other Federal agencies, Native American tribes, state and local governments, and the general public to participate in the scoping process. The Notice of Intent also presented background information on the Andrade POE and preliminary alternatives.

A scoping meeting was held for the general public on January 7, 2004, at the Shilo Inn in Yuma, Arizona. At this meeting, the GSA presented information on its proposal to prepare the EIS and the alternatives planned for analysis. All presentation materials were available in English and Spanish. The public was invited to present oral and/or written comments at the scoping meeting. Written comments could also be submitted by regular mail, facsimile, and electronic mail.

During the public scoping process, a total of 19 individuals and organizations either submitted requests for continued notification about the project or made oral or written comments at the meeting. All of these comments have been reviewed and considered at various stages during the preparation of the EIS. Many are explicitly addressed in the pertinent sections of the document. Major comments are summarized below.

- **Alternatives for New Facility on Current Site and Adjacent Land to West.** These alternatives would remove parking spaces from the Quechan parking lot; may not improve pedestrian safety.
- **New Facility on Peninsula Alternative.** This alternative would move the facility further from the parking lot, making it more difficult for access by seniors; build road north-south along peninsula between Alamo Canal and Colorado River.
- **New Facility in Arizona for Vehicles Only Alternative.** This alternative would result in additional traffic in Yuma, including trucks; would take away valuable farmland; would be counter to County/City land use plans by developing farm area; would require a new Presidential permit; commercial traffic should use the San Luis port to the south; analyze the effect of a traffic accident involving hazardous waste on the bridge over the Colorado River; bridge would have to be high enough to clear railroad along levee; would be more convenient for Yuma residents.
- **Biological Resources.** Evaluate impacts to sensitive fauna including southwestern willow flycatcher, Yuma clapper rail, flat-tailed horned lizard, great egret, snowy egret, western yellow-billed cuckoo, and Yuma hispid cotton rat.
- **Human Health and Safety.** Construct pedestrian overpass.
- **Traffic.** Address traffic impacts to SR-186 and I-8.
- **Public Involvement.** Cooperate with the Bureau of Indian Affairs (BIA) and local tribes.

After the public scoping period, several meetings were held with the Quechan Tribe to discuss their concerns regarding the proposed alternatives. These concerns focused heavily on the loss of parking spaces associated with the Alternatives for an expanded facility on the current site and adjacent land. As a result of these meetings, two alternatives were added, one with an expanded facility on the current site and fill extending eastward and northward over Alamo Canal, and a new facility on the peninsula for vehicles only.

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2 ALTERNATIVES

2.1 Introduction

The CEQ regulations (40 CFR 1500-1508) require that Federal agencies use the review process established by the *National Environmental Policy Act* of 1969 to identify and review reasonable alternatives, as well as a “no action” alternative. This comprehensive review ensures that environmental information is available to public officials and citizens before decisions are made and before actions are taken. These alternatives are central to an EIS.

GSA established the following criteria to assist in developing the alternatives. They include:

- Provide a comfortable, secure, and safe environment for travelers and CBP staff.
- Keep CBP pedestrian and vehicular staff co-located.
- Design facilities that are compatible with the regional character and local context, and project a positive image of the U.S. government.
- Serve the specific needs of the unique population that uses the Andrade POE by removing traffic and pedestrian conflicts, reducing northbound wait times, and limiting walking distances.
- Maintain the location and number of public parking spaces.
- Allow for future expansion of facilities to accommodate additional inspection needs and increases in pedestrian, private vehicular, and commercial traffic.
- Align vehicular and pedestrian access and egress with existing and future Mexican facilities.
- Remain operational during construction.
- Accommodate bus passengers.
- Respect the environmental sensitivity of the area.

Alternatives were drafted, modified, and rated based on these criteria. With subsequent public input, GSA developed five alternatives that would meet the purpose and need for the project; however, no single alternative was judged satisfactory in meeting all listed criteria.

Because of similarities between alternatives and the addition of two new alternatives as a result of coordination with the Quechan Tribe, the nomenclature has changed from that used in the Notice of Intent. The alternatives analyzed in this EIS are as follows:

- No Action Alternative
- Alternative 1: New Facility on Current Site and Adjacent Land to West (Variants A and B)
- Alternative 2: New Facility on Current Site and Adjacent Land to East
- Alternative 3: New Pedestrian and Vehicle Facility on Peninsula
- Alternative 4. New Facility on Peninsula for Vehicles Only

- Alternative 5: New Facility in Arizona for Vehicles Only

Each alternative consists of a set of renovation, construction, and/or demolition activities, as well as operations. These activities are addressed in the following sections.

2.2 No Action Alternative

Under the No Action Alternative, operation of the Andrade POE would continue at the present facility, described in Section 1.3. The Quechan Tribe parking lot would be unaffected. This alternative would not require the acquisition of any new land; the approximately 1.85 acres occupied by the current facility would continue to be leased from the Quechan Tribe.

No construction or demolition would take place. Operations would continue with a staff of approximately 40 employees.

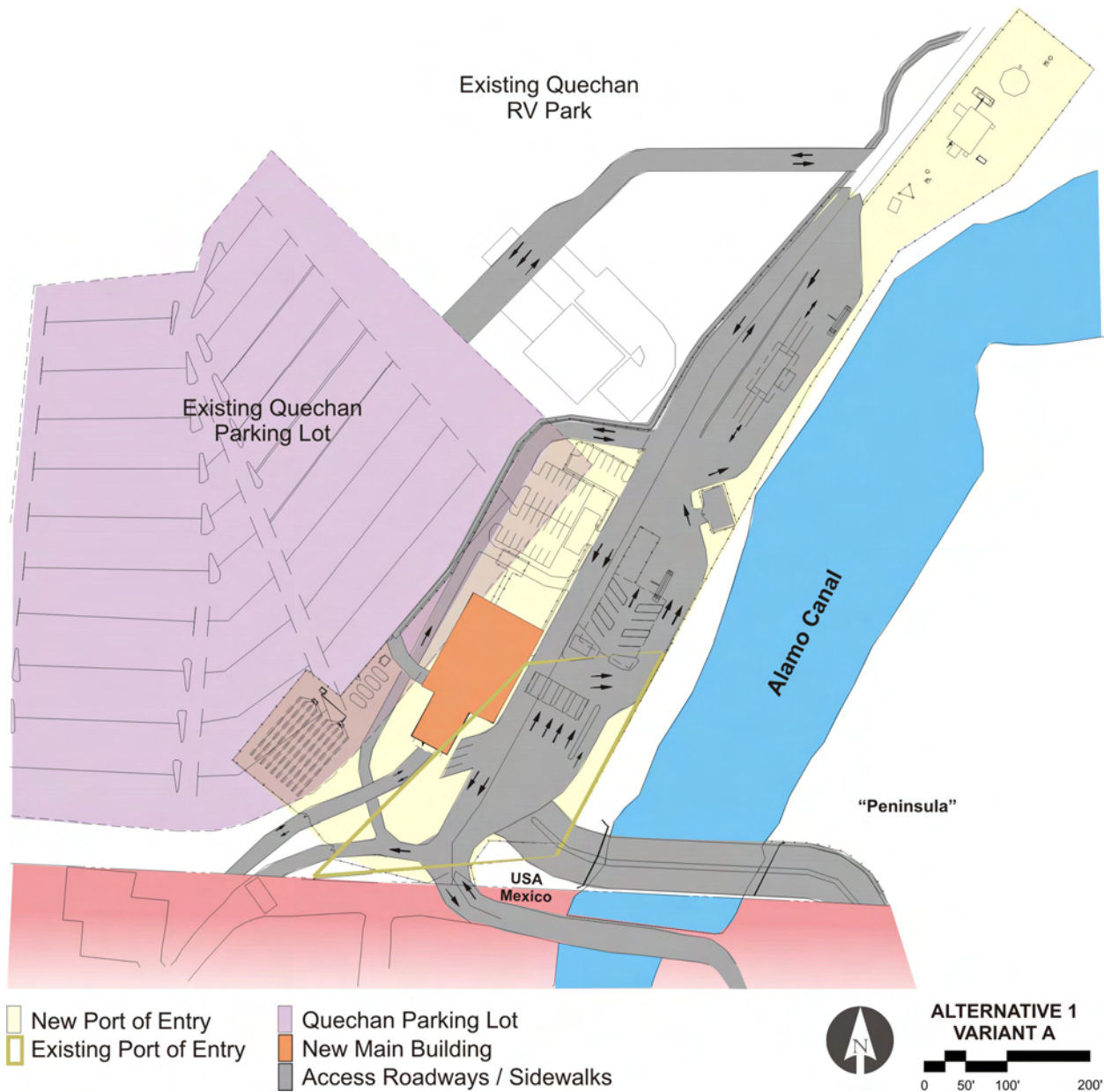
This alternative would not meet GSA's purpose and need. The size and configuration of the facility would result in continued deficiencies in operational efficiency and safety. Pedestrians en route to or from Mexico from the Quechan parking lot would still have to cross up to four lanes of vehicular traffic; northbound queuing times would remain the same or increase, as no new inspection lanes would be built; CBP staff would continue with inadequate space for operations, particularly for the inspection of buses and commercial vehicles; and there would be little or no opportunity for future expansion. However, pedestrian walking distance would remain the same, and the access and egress routes would remain aligned with the current Mexican facilities.

2.3 Alternative 1: New Facility on Current Site and Adjacent Land to West

Alternative 1 (Figures 2-1 and 2-2) would include construction of a new facility on a site approximately 7.5 acres in size that includes the existing site and additional property north and west of the existing site. This would require vacating the right of way for SR-186 and leasing portions of the Quechan Tribe parking lot and recreational vehicle park overflow area, in addition to land on which the current POE is situated. Approximately 200 of the 1,044 parking spaces in the Quechan Tribe parking lot would be eliminated by this alternative.

A number of buildings and support elements would be constructed under this alternative:

- A main building of approximately 17,000 square feet in size
- Primary and secondary inspection canopies
- Three primary inspection lanes for northbound vehicular traffic (expandable to four)
- One inspection lane for southbound vehicular traffic (expandable to two)
- Eight secondary inspection spaces (expandable to sixteen)
- A kennel with four day pens and van parking (expandable to eight long stay pens)
- Fifty employee parking spaces
- An outdoor sally port
- 100-foot communications tower and building



Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

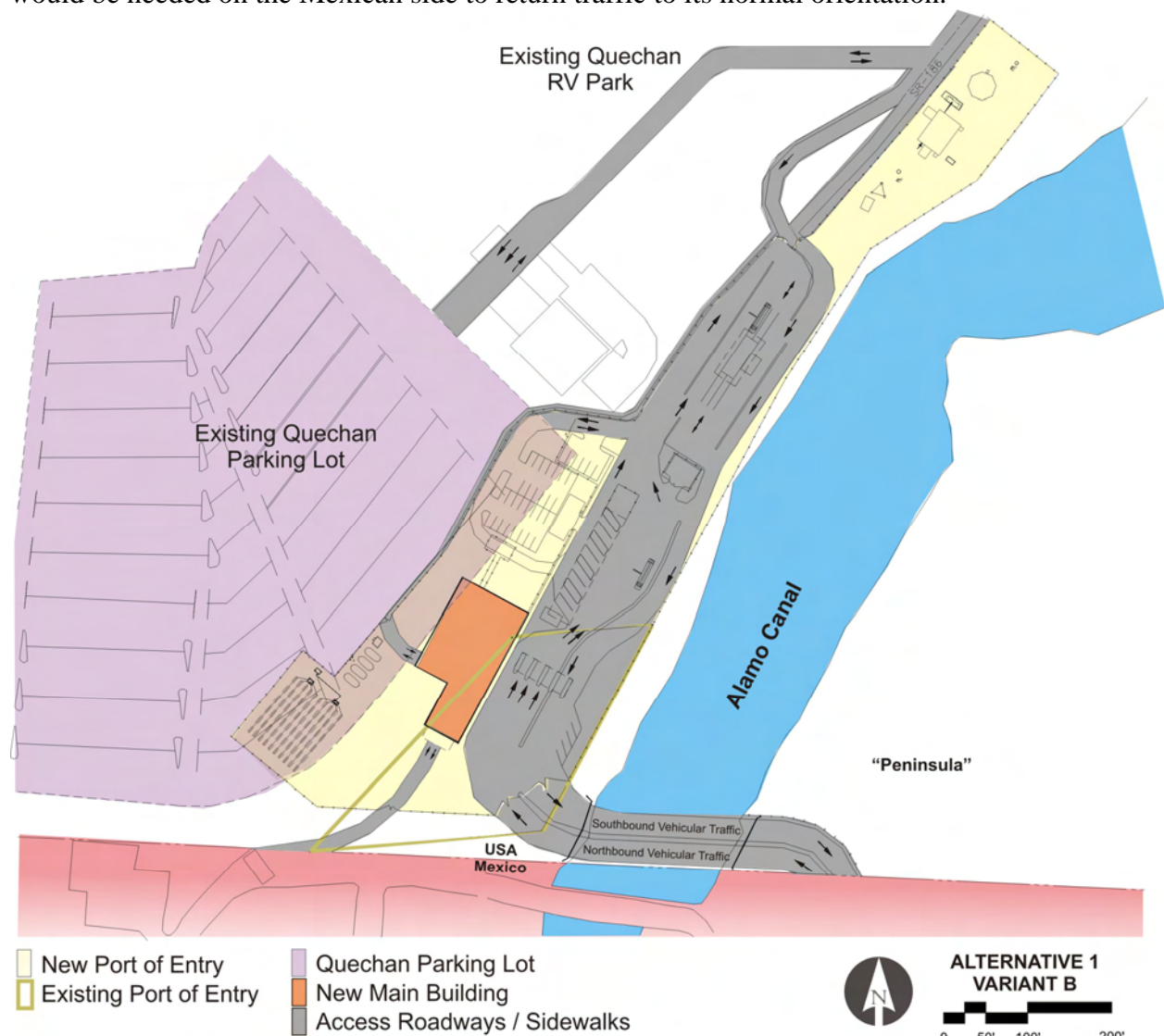
Figure 2-1. Alternative 1 Variant A

- Parking spaces for permit or visitor parking
- Vehicle dismantling area and impound lot
- Location for a mobile vehicle and cargo inspection system
- Water supply and wastewater infrastructure
- A cargo building (approximately 1,300 square feet) and dock that, at a minimum can accommodate one northbound and one southbound truck.

Operations at the new facility would require a staff of approximately 80 employees.

There are two variants within this alternative. In Variant A (Figure 2-1), traffic would flow south on the west side of the road adjacent to the east side of the main building and north on the east side of the road. The travel patterns of both pedestrians and vehicles would be separated. This would be accomplished by constructing the main building on the west side of SR-186.

Pedestrians would thus travel directly from the international border to the main building for processing and upon exiting the west side of the building, travel directly to the Quechan Tribe parking lot. Pedestrians would need to cross an access lane for vehicles immediately returning to the U.S. In Variant B (Figure 2-2), vehicular traffic flow would be reversed by means of a new turnaround on SR-186 north of the facility. This would place the northbound traffic on the west side of the road adjacent to the east side of the main building and southbound traffic on the east side of the road. New bridges over the Alamo Canal, as well as a new vehicular inspection facility in Mexico, are required for this alternative to work. Additionally, a highway turnaround would be needed on the Mexican side to return traffic to its normal orientation.



Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

Figure 2-2. Alternative 1 Variant B

Both variants of this alternative would meet GSA's purpose and need. Pedestrians en route to or from Mexico from the Quechan parking lot would not have to cross vehicular lanes and walking distance would remain reasonable. Northbound queuing times would be reduced through the addition of a new inspection lane, CBP staff would have adequate space for operations, opportunity for some future expansion would exist, and access/egress would be aligned with existing Mexican facilities. However, approximately 200 spaces would be eliminated from the Quechan parking lot, expansion possibilities for inspection of commercial traffic would be limited, and full operations could not likely continue during construction. Handling of buses would be difficult under Variant A as northbound bus passengers would have to cross southbound vehicle lanes to reach the main building.

2.4 Alternative 2: New Facility on Current Site and Adjacent Land to East

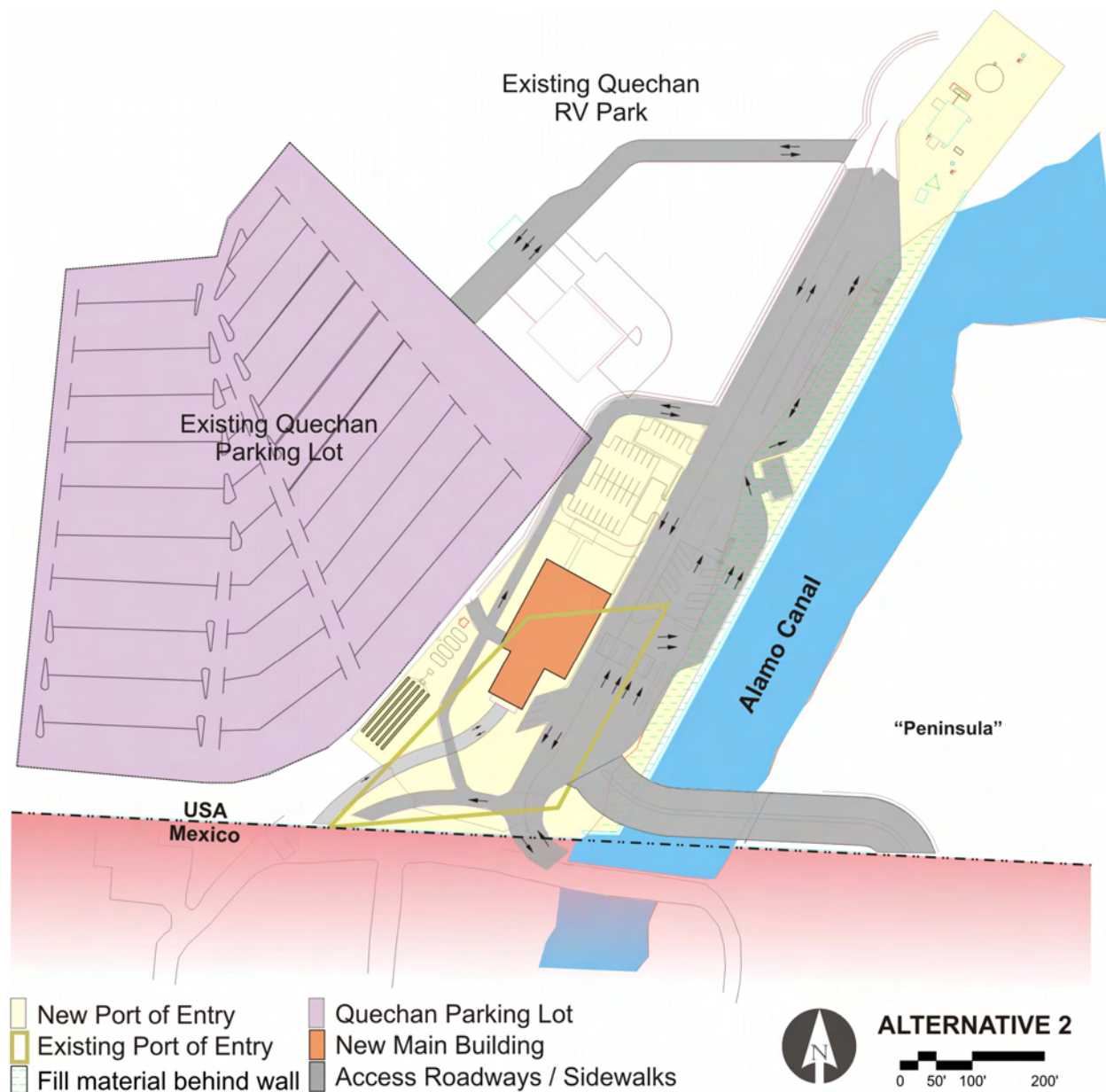
Alternative 2 (Figure 2-3) would also include construction of a new facility on a 7.5-acre parcel that includes the existing site. However, instead of expanding the facility west onto the Quechan Tribe parking lot, the western edge of the Alamo Canal would be filled to allow a foundation for the facility to the east. The area to be filled would extend approximately 1,000 ft along the canal, extending up to 100 ft into the canal. A 15-ft-high bulkhead would be constructed along the edge of the canal to stabilize and maximize the usable construction area. The Quechan parking lot area would remain the same under this alternative. Land created as a result of fill in the Alamo Canal would become part of the existing Quechan lease, so close coordination with the Tribe would be necessary before such an undertaking. State, Federal, and Mexican authorities with an interest in the Alamo Canal should be involved in the implementation of this alternative.

The buildings and support elements that would be constructed under this alternative are the same as those listed for Alternative 1. Operations would require a staff of approximately 80 employees. The configuration of the facility would be the same as Alternative 1 Variant A.

This alternative would meet GSA's purpose and need. Spaces would not be eliminated from the Quechan parking lot, pedestrians en route to or from Mexico from the lot would not have to cross vehicular lanes, walking distance would remain reasonable, northbound queuing times would be reduced through the addition of new inspection lanes, CBP staff would have adequate space for operations, and opportunity for future expansion would exist. However, full operations would be unlikely to continue during construction and the use of buses would be difficult, as northbound bus passengers would have to cross southbound vehicle lanes to reach the main building.

2.5 Alternative 3: New Facility on Peninsula

Alternative 3 (Figure 2-4) proposes the construction of a new facility approximately one-quarter mile east of SR-186 on the peninsula east of the Alamo Canal. Approximately 12 acres of land leased from the Quechan Tribe would be required to accommodate the new POE. Approximately 1 acre of land north of the current POE would be leased from the Quechan Tribe to accommodate a new roadway connecting to SR-186, a bridge, and a pedestrian walkway. The new bridge over the Alamo Canal would accommodate all vehicular and pedestrian traffic. The existing port would be closed, buildings demolished, and land returned to the Quechan Tribe.

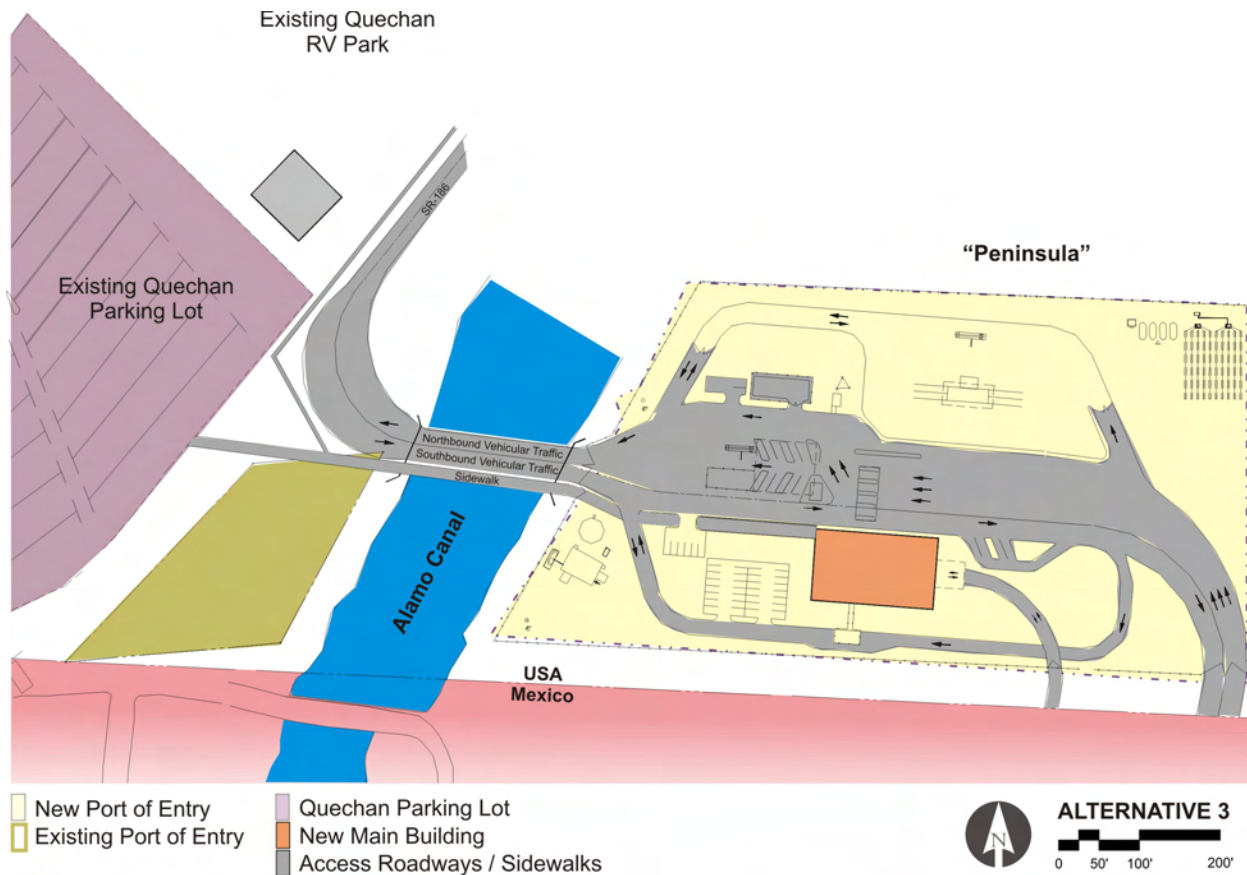


Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

Figure 2-3. Alternative 2

The buildings and support elements that would be constructed under this alternative are the same as those listed for Alternative 1. Operations would require a staff of approximately 80 employees. The configuration of the new POE would be the same as Alternative 1 Variant A.

This alternative would meet GSA's purpose and need. Parking spaces would not be eliminated from the Quechan parking lot, pedestrians en route from the Quechan parking lot would not have to cross vehicular lanes, northbound queuing times would be reduced through the addition of new inspection lanes, CBP staff would have adequate space for operations, opportunity for future expansion would exist, and the current port would remain open during construction. However, the walking distance for pedestrians entering Mexico from the Quechan parking lot would be



Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

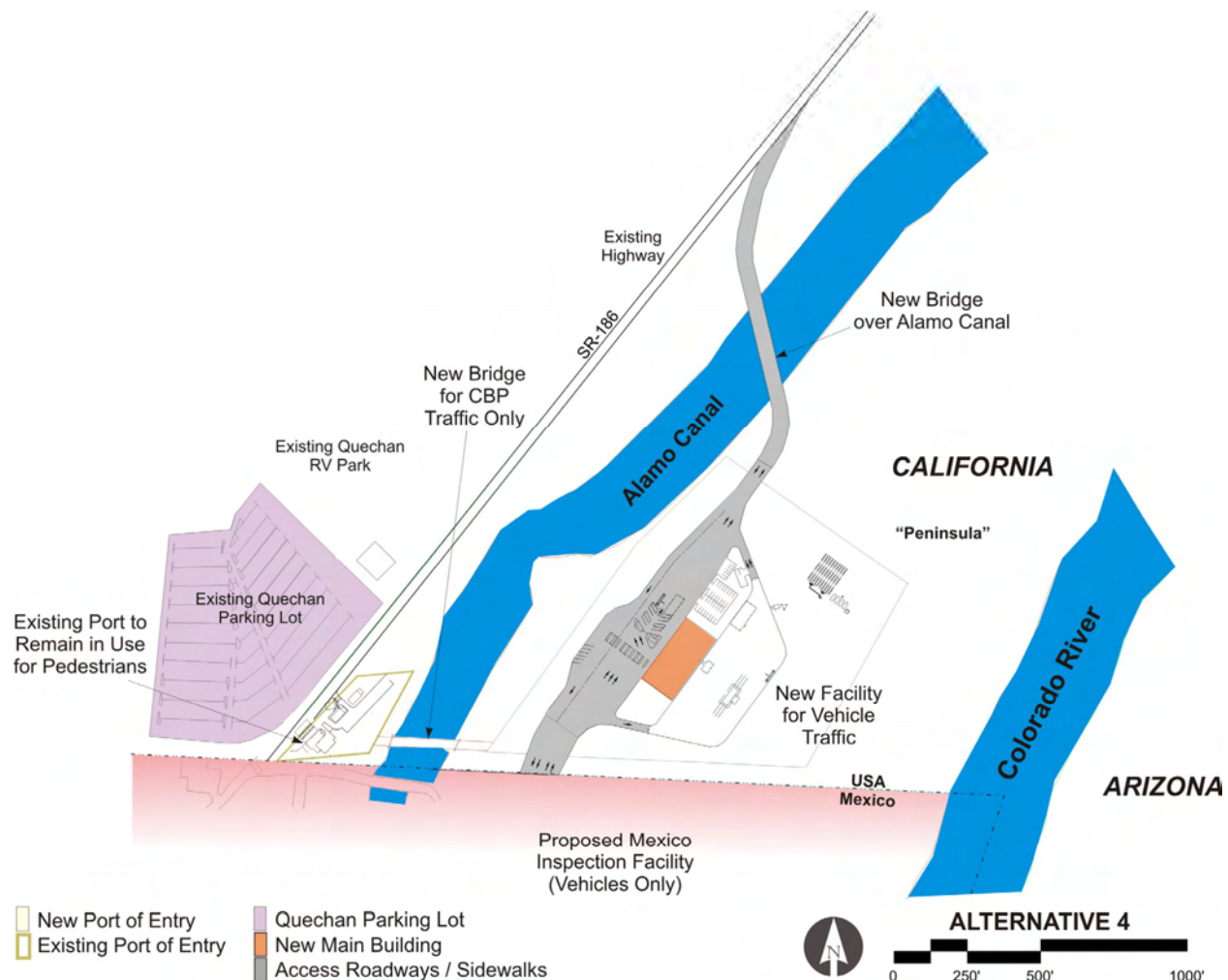
Figure 2-4. Alternative 3

more than doubled, handling of buses would be difficult as northbound bus passengers would have to cross southbound vehicle lanes to reach the main building, and the port would not align with the existing Mexican POE.

2.6 Alternative 4: New Facility on Peninsula for Vehicles Only

Alternative 4 (Figure 2-5) proposes the construction of a new facility on the peninsula east of the existing POE facility, across the Alamo Canal. As with Alternative 3, approximately 12 acres of land would be leased from the Quechan Tribe to accommodate the new POE. However, the current facility would continue operation with reconfiguration as a pedestrian-only port. A new bridge over the Alamo Canal would accommodate all vehicular traffic and CBP personnel walking or driving between the two facilities. Approximately 1 acre of land north of the current POE would be leased from the Quechan Tribe to accommodate a new roadway connecting to SR-186 and the new bridge. The bridge over the Alamo Canal would accommodate all vehicular traffic and CBP foot traffic.

The buildings and support elements that would be constructed under this alternative would be similar to those listed for Alternative 1. Minor demolition and construction would take place at the existing facility as part of the reconfiguration to pedestrian-only operations. Operations at



Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

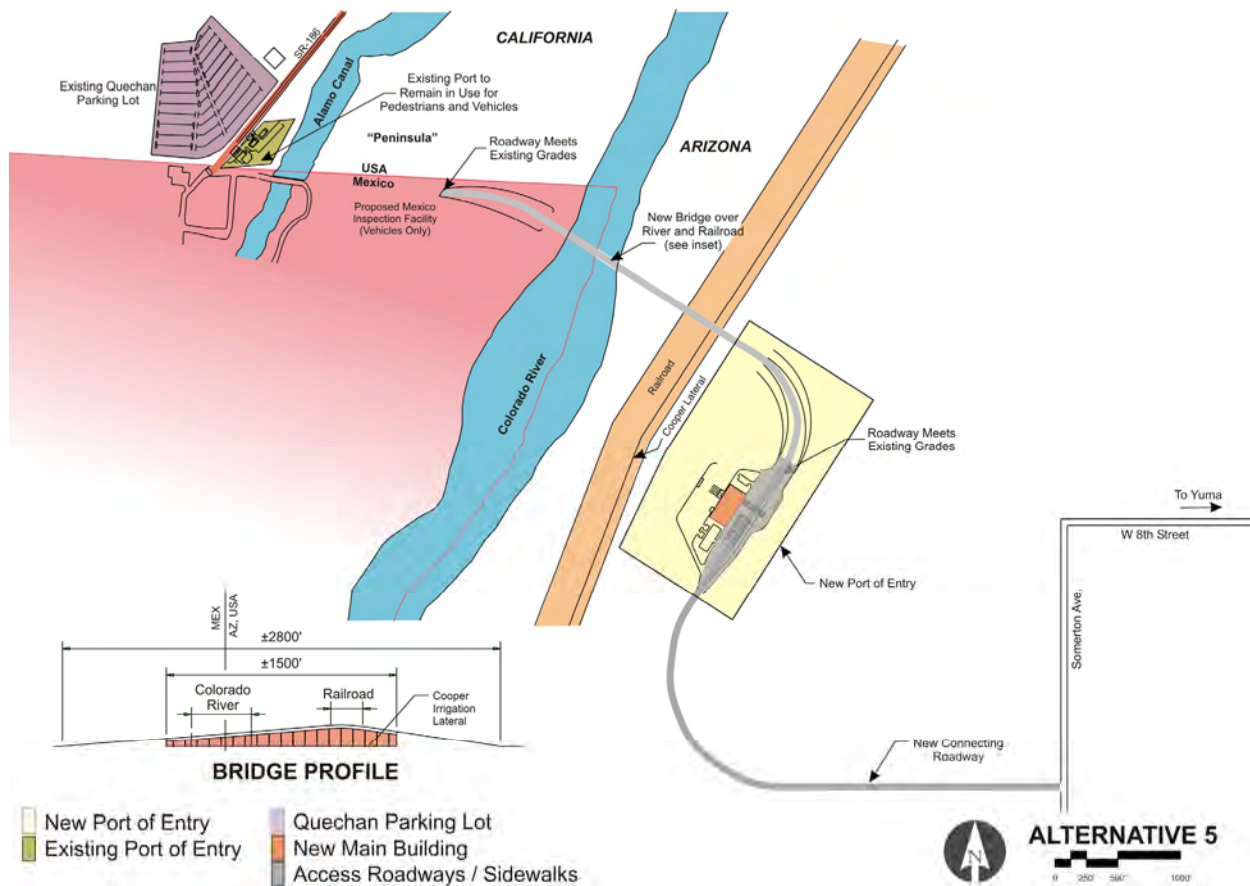
Figure 2-5. Alternative 4

both the existing facility and the new facility would require a staff of approximately 80 employees.

This alternative would meet GSA's purpose and need. Parking spaces would not be eliminated from the Quechan parking lot, pedestrians en route from the Quechan parking lot would not have to cross vehicular lanes, walking distances would remain reasonable, northbound queuing times would be reduced through the addition of new inspection lanes, CBP staff would have adequate space for operations, opportunity for future expansion would exist, and the current port could remain open during construction. Handling of buses would again be difficult, as northbound bus passengers would have to cross southbound vehicle lanes to reach the main building, the port would not align with the existing Mexican POE for vehicles, and CBP staff would be split between two facilities.

2.7 Alternative 5: New Facility in Arizona for Vehicles Only

Alternative 5 (Figure 2-6), as with Alternative 4, calls for two facilities. The Andrade POE would continue its current operating profile. A second port would be constructed to the east of



Facility configuration is approximate. Final placement of facility elements would be dependent on engineering factors, alignment with future Mexican facilities, and land acquisition constraints.

Figure 2-6. Alternative 5.

the Colorado River, connecting Mexico with Arizona via a bridge. A new connecting roadway would provide access to Somerton Avenue, west of Yuma. This alternative would require cooperation and funding from the Arizona Department of Transportation, City of Yuma, County of Yuma, the International Boundary and Water Commission (IBWC), the Bureau of Reclamation, and the U.S. Army Corps of Engineers. Approximately 50 acres of land, most of which is privately owned, would be purchased to accommodate the new facility, bridge, and connecting roadway. As with every new POE, a Presidential Permit would have to be obtained before construction.

It is anticipated that the majority of POVs and all commercial traffic would be rerouted to the new POE, leaving the Andrade POE primarily for pedestrian crossings. The current POE has significant limitations for POVs in its current configuration and would not improve under Alternative 5. It has limited capacity and poor traffic flow for vehicles entering or exiting Mexico because of narrow city streets on the Mexico side of the border. The greater capacity, anticipated better connections to arterials on the Mexico side of the border, and closer proximity to Yuma, would likely make the new port under Alternative 5 more attractive for POVs. POVs would not be prohibited from using the Andrade POE, however.

This alternative would feature U.S.-bound traffic flow adjacent to the main building. The buildings and support elements that would be constructed under this alternative are the same as

those listed for Alternative 1. Operations at both the existing facility and the new facility would require a staff of approximately 100 employees.

This alternative would meet GSA's purpose and need. Parking spaces would not be eliminated from the Quechan parking lot, northbound queuing times would be reduced through the addition of new inspection lanes, CBP staff would have adequate space for operations, opportunity for future expansion would exist, the current POE would remain aligned with the existing Mexican POE, the current facility could remain open during construction, the walking distance for pedestrians entering Mexico from the Quechan parking lot would remain reasonable, and buses could be handled safely without passengers crossing vehicle lanes. However, the new port would not align with the existing Mexican POE for vehicles and CBP staff would be split between two facilities. Northbound pedestrians at the existing POE would still have to cross vehicular lanes between the main building and the Quechan parking lot. However, because most vehicular traffic would be routed to the new facility in Arizona, conflicts between pedestrians and vehicles would be minimized.

3 AFFECTED ENVIRONMENT

3.1 Introduction

Understanding the affected environment is necessary for understanding potential impacts from construction and operations at the Andrade POE. This chapter describes the existing conditions that comprise the physical and natural environment within and near the Andrade POE, and the relationship of people with that environment. Descriptions of the affected environment provide a framework for understanding the direct, indirect, and cumulative effects of the No Action and each of the five action alternatives. The project area, as discussed in this chapter, comprises the existing Andrade POE and the areas that would be used for construction and operation of the five action alternatives. The discussion is categorized by resource area to ensure that all relevant issues are included. A region of influence is defined for each resource area, which includes the project area, at a minimum. Some resource areas have regions of influence that extend beyond the project area. This chapter is divided into the following 13 resource areas, and also includes other topic areas that support the impact assessment discussed in Chapter 4:

- Geology and Soils
- Water Resources
- Land Use
- Biological Resources
- Cultural Resources
- Visual Resources
- Infrastructure
- Traffic
- Air Quality
- Noise
- Human Health and Safety
- Socioeconomics
- Environmental Justice

The information in this chapter comes primarily from a biological survey conducted on November 17-18, 2004, a cultural resource survey conducted on December 13, 2004, interviews with various officials, site visits, data collected by local agencies, and other publications. The most recent available data are used, where possible. Data from other years may be used where necessary to present trends.

A set of short-term upgrades designed to temporarily alleviate some of the problems with the existing facility are scheduled for construction under during 2005 and 2006. These upgrades, which GSA has determined are categorically excluded from NEPA, include minor building renovation, crosswalk enhancements, water system improvements, and construction of an

exterior canopy for pedestrians. The description of the affected environment does not include these upgrades.

3.2 Geology and Soils

3.2.1 Geology

The region of influence is within the basin and range lowlands province of southwestern Arizona near Yuma. The province is made up of broad alluvial basins bounded by high mountain ranges formed during the middle to late Pleistocene Era. The project area on the California side of the Colorado River is in the northern tip of the Mexicali Valley, which extends southward into Mexico. The site of the new facility under Alternative 5 is in the northwest corner of the Yuma Valley, which extends southward to a point near San Luis at the Mexican Border, and eastward to the Yuma Mesa, east and south of the city of Yuma. The Mexicali and Yuma valleys are Holocene floodplains of the Colorado River (Olmsted 1973).

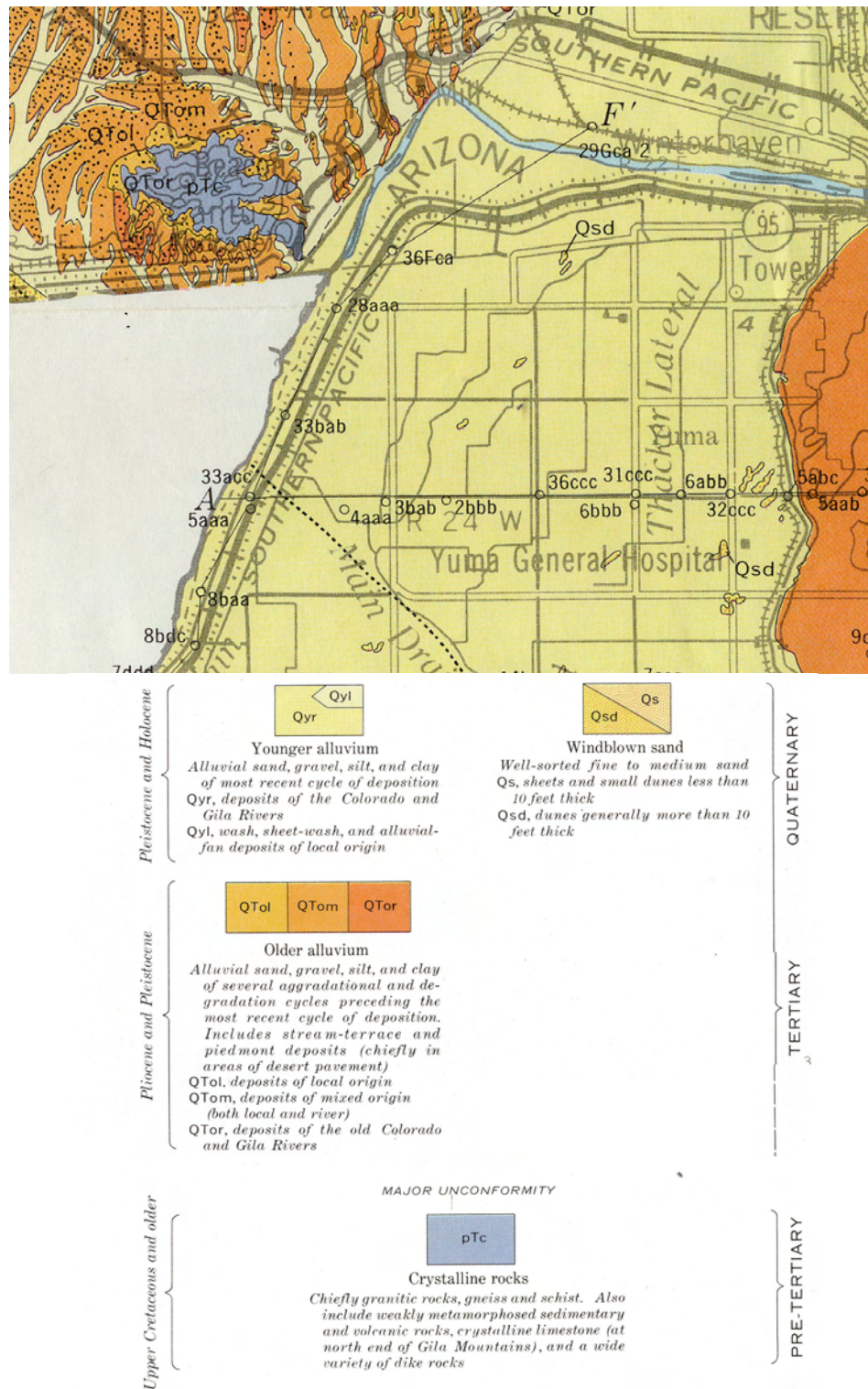
3.2.1.1 Physical Setting

The region of influence for geology is defined as the area that could be affected by the construction and operation of the project structures. The region of influence for the project consists of the geologic features and mineral resources within 200 feet of project structures including associated roads. For large-scale geological conditions such as earthquakes and geological resources, regional information is presented as these conditions tend to affect broad expanses of land and are not typically restricted to smaller discrete areas of land.

The geology of the area has been described in *Geohydrology of the Yuma Area, Arizona and California* (Olmsted 1973), and the summary provided here is derived from that source. Figure 3.2-1 illustrates the geology near the project area. The geology of the Yuma area is characterized by fault block basin and range topography with crystalline bedrock exposed in the mountains and alluvial-filled valleys separating the mountains. Overlying the bedrock is a series of marine and nonmarine sedimentary units. The older units consist of Tertiary-age nonmarine sediments and related volcanics, ranging from mudstones and shales to sandstones, conglomerates, and breccias. These sedimentary rocks are associated with a series of Tertiary volcanic flows and tuffs. These older nonmarine sedimentary rocks are unconformably overlain by Tertiary marine sedimentary rocks consisting of fine sandstone, siltstone, and claystone. These marine sediments are unconformably overlain by the marine sedimentary rocks of the Bouse Formation, which consists of claystones, siltstones, and sandstones or sandy limestone. The Bouse Formation is overlain by the Older Alluvium, which is a nonmarine sedimentary unit consisting of alluvial fan and alluvial fill deposits, grading from clays to cobbles and boulders. The Older Alluvium is exposed around Pilot Knob and east of the project area. The Older Alluvium includes locally derived alluvial fan deposits, terraces, and stream deposits from the Colorado and Gila Rivers. This unit is overlain by the Younger Alluvium, which consists of alluvial river deposits of the Colorado and Gila Rivers and alluvial fan deposits from local sources. These deposits grade from silts and sands to gravels in the river-derived deposits to poorly sorted alluvial fan deposits.

3.2.1.2 Mineral Resources

The mountain ranges to the east of Yuma are known to have contained economic quantities of minerals. At the north end of the Gila Mountains, northwest of Yuma, prospectors found gold in



Source: Olmsted 1973

Figure 3.2-1. Geology of the Project Area

the gulch and bench gravels. By 1865, the high-grade placers were worked out, but sporadic activity continued through 1950. Total gold production through 1959 was about 24,765 ounces, the bulk of which was mined before 1865 (Arizona Outdoorsman 2005, Ashworth 2005).

Mineral resources near the project area are limited. A gravel quarry on the northwest side of Pilot Knob, approximately 2 miles northwest of the Andrade POE, was established for repair of the Alamo Canal in about 1906 (Sperry 1975). No other mineral resources are known to be present in the project area.

3.2.1.3 Geologic Hazards

Geologic hazards consist of the geologic conditions that could affect the stability of the ground and engineered structures associated with the alternatives, including earthquakes, surface faulting, soil liquefaction, slope stability, and surface subsidence. The project area lies in Seismic Zone 4 (Yuma County 2003). Zone 4 represents the greatest ground-shaking potential (Bausch and Brumbaugh 1996).

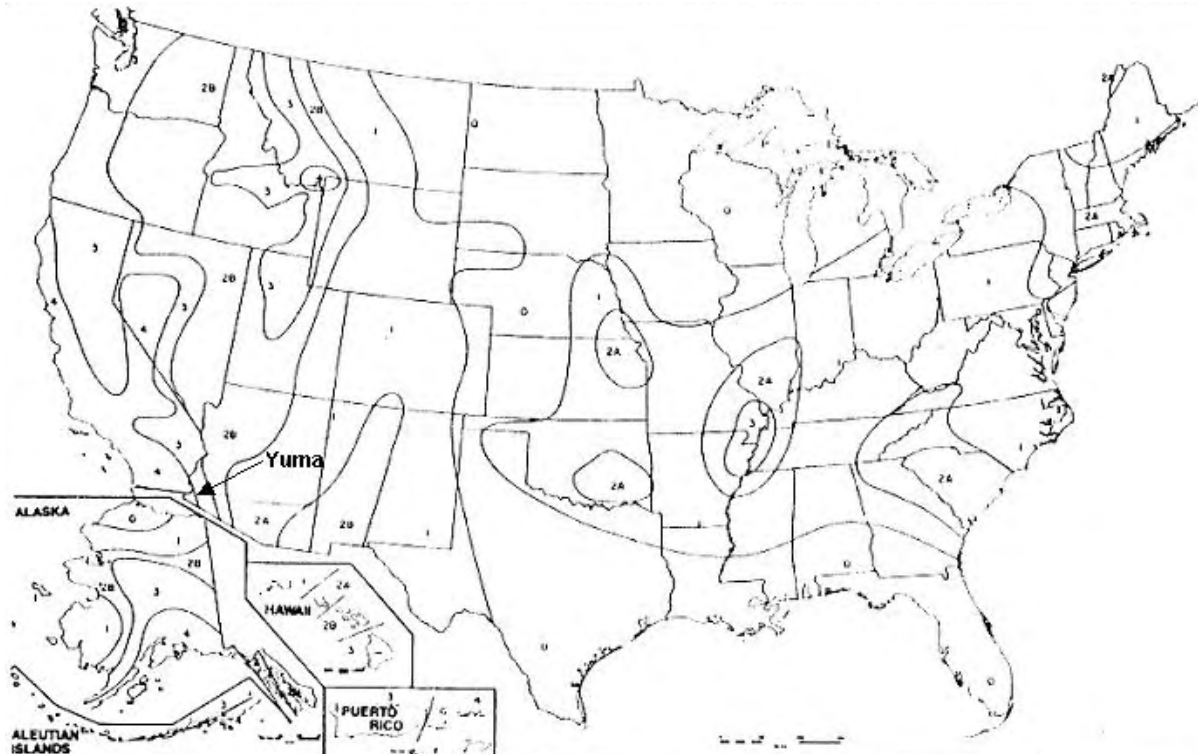
The project area is subject to ground shaking from earthquakes originating in southern California and northern Mexico, as shown by the earthquake hazard scale in Figure 3.2-2. The state of Arizona and southeastern California have been subdivided into four categories to show interpreted earthquake hazard. The categories are based on rates of historical earthquake activity, number of potentially active faults, and the estimated slip rates for those faults. Major fault zones, including the San Andreas, San Jacinto, Imperial, and the Cerro Prieto, occur within 65 miles of Yuma. The majority of the earthquakes felt in the Yuma region occur in these fault zones. On average, earthquakes are felt in the Yuma Region once per year (Yuma County 2003). Historically, earthquakes originating in the Imperial Valley region of southern California have resulted in some damage to the Yuma region.

The seismic hazard potential in the Yuma region is considered the highest in Arizona. There is a reasonable probability that damaging levels of seismic shaking will occur in the Yuma area within the next 50 years (Yuma County 2003).

Liquefaction damage resulting from ground shaking is a serious threat in the valleys of the Yuma region. Liquefaction occurs when the ground shakes and causes shallow, unconsolidated, water saturated deposits of silt and sand to temporarily lose strength and flow. Structures built on those deposits commonly experience major damage when liquefaction takes place. Liquefaction damage occurred throughout much of the Yuma region during the May 18, 1940, Imperial Valley earthquake. The Yuma Valley has a high liquefaction potential.

The project area is generally too flat to be affected by mass movements such as rockfalls and landslides, although the potential for these exists in steeper areas along the banks of the Colorado River and Alamo Canal. Flash flooding is unlikely in the project area because of drainage control at upstream dams and reservoirs along the Colorado and Gila rivers.

Surface subsidence is caused by the collapse of subsurface voids or by the withdrawal of large amounts of groundwater over larger areas. The collapse of subsurface voids is not common in the geologic layers underlying the project area.



Source: Bausch and Brumbaugh 1996

Note: Designations range from 0 to 4, with 4 representing the greatest ground shaking potential. The project area lies within Zone 4 of the national mapping.

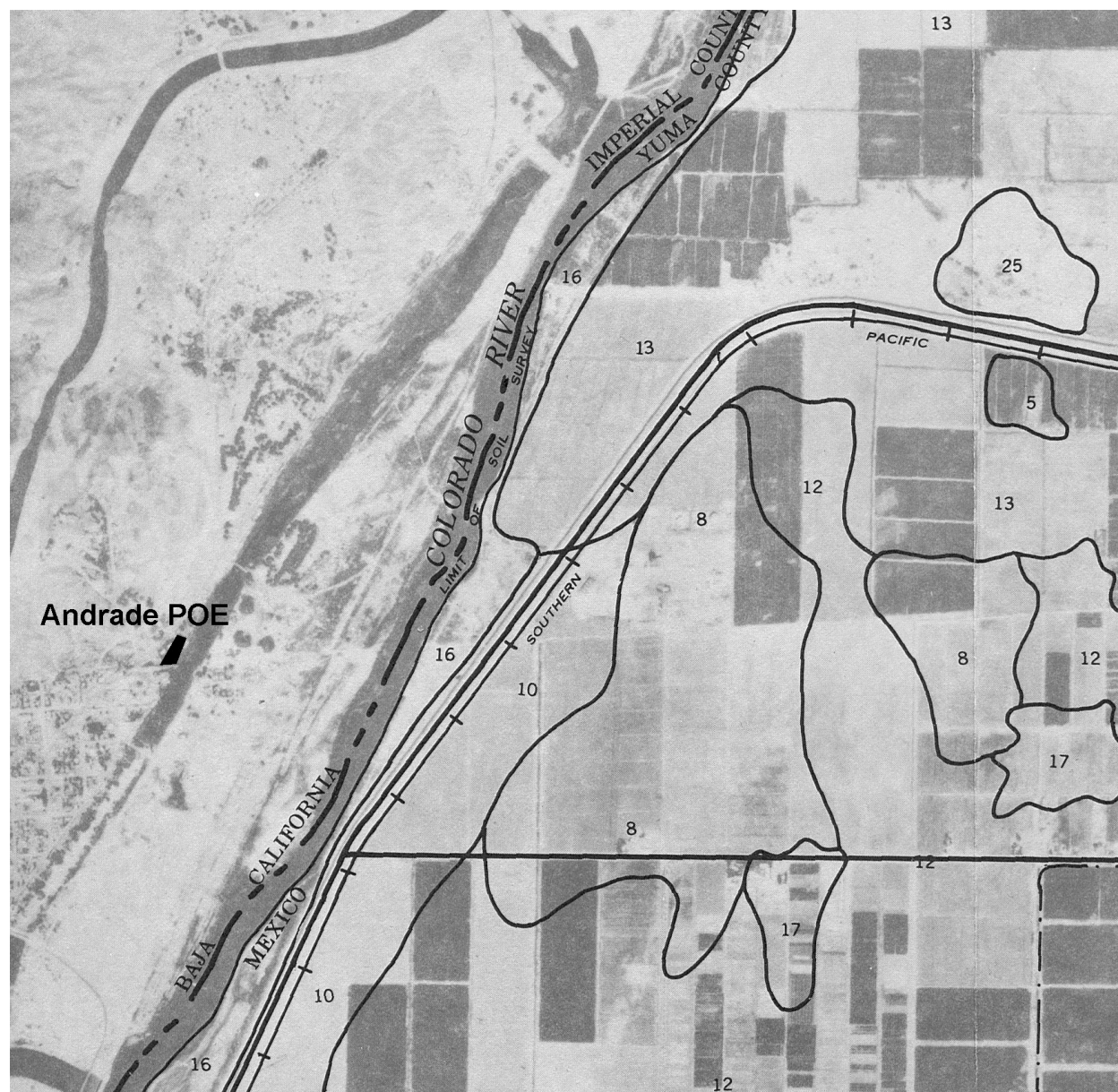
Figure 3.2-2. Seismic Zone Map of the United States from the 1991 Uniform Building Code

3.2.2 Soils

The region of influence consists of soils within 200 feet of the project area.

A soils investigation was conducted in the peninsula area in conjunction with this EIS (NEI Geotechnical 2004). The entire soil profile in the peninsula area consists of firm, poorly graded, fine grained, light tan, dry sand with very little silt. Laboratory tests indicate that this soil is classified as poorly graded, clean sand, with no expansion potential. As the Alamo Canal is a man-made trench separating the peninsula from the current POE, the soil profile at the current POE is likely similar, though intermixed with fill from the construction of the port.

The area east of the Colorado River includes the Holtville-Gadsden-Kofa soils, described as deep, nearly level, well drained, and clayey (U.S. Department of Agriculture [USDA] 1980). The site of Alternative 5 is dominated by Glenbar silty clay loam, a soil with moderately slow permeability and high available water capacity (Figure 3.2-3). In the Yuma Valley, this soil is used for irrigated alfalfa hay, small grain, cotton, sugar beets, grain sorghum, vegetables, citrus fruit, and bermuda grass (USDA 1980). According to the USDA, this soil is moderately limited for urban development because of moderate shrink-swell potential and low strength. It is severely limited for septic tank absorption fields because of moderately slow permeability (USDA 1980).



Soil Types Legend

5	Dateland loamy fine sand	12	Holtville clay	17	Kofa clay
8	Gadsen clay	13	Indio silt loam	25	Rositas sand
10	Glenbar silty clay loam	16	Indio-Lagunita-Ripley complex		

Source: USDA 1980

Figure 3.2-3. Soils in the Project Area

3.3 Water Resources

3.3.1 Surface Water

3.3.1.1 Supply

The project area is in the Imperial County, California and Yuma County, Arizona, in the Lower Colorado River Basin. The region of influence for surface water is limited to the Alamo Canal and Colorado River downstream from the proposed facility.

The Yuma Valley is an arid region with one principal waterway, the Colorado River. Average flow in the river near the intersection of the California, Arizona, and Mexico borders as measured during the period from 1950 to 2003 is 4,520 cubic feet per second (cfs) (IBWC 2004).

The U.S. and Mexican governments, through the IBWC, jointly administer the terms of the 1944 Water Treaty relating to the Colorado River, which provides that there is allotted to Mexico (a) a guaranteed annual quantity of 1,500,000 acre-feet, and (b) any other quantities arriving at the Mexican points of diversion with certain conditions stipulated in the 1944 Treaty. The application of these terms began in 1950. The operations are performed in collaboration with the U.S. Bureau of Reclamation. The U.S. Bureau of Reclamation makes the releases as necessary from the U.S. storage works on the Colorado River to fulfill the delivery schedule.

In 1950, Mexico completed the Morelos Dam to enable the diversion of the major part of the allotted waters from the river. The waters diverted are used to irrigate the extensive and highly-developed lands in the Mexicali Valley to the southwest of the project area. The dam is located 1.1 miles downstream from the intersection of the California, Arizona, and Mexico boundaries. The dam is constructed of reinforced concrete spanning 1,400 feet across the Colorado River. It supports 20 electrically-operated, radial gates to control stages of the Colorado River, enabling diversions through the adjoining intake structure that supports 12 radial gates that control diversions westward to the canal system in Mexico. The river part of the dam is designed to pass a flood of 350,000 cfs and the intake structure is designed to pass 8,000 cfs. Morelos Dam is operated and maintained by Mexico. The river levees along the Colorado River in the U.S. upstream from Morelos Dam were raised in 1951 and 1952 to protect U.S. lands against flood damage that might result from the construction and operation of this diversion dam.

3.3.1.2 Quality

In 1965, the two Governments approved recommendations of the IBWC for a five-year-agreement for remedial measures and procedures by the U.S. to alleviate the problem which arose in 1961-1962 of increased salinity of the Colorado River treaty deliveries to Mexico, caused by saline drainage waters originating in the U.S. The agreement was extended for two years to 1972. It provided for the construction and operation by the U.S. of a bypass channel, which could pass to the river downstream of Morelos Dam a portion of the saline drainage waters and enable substitution of low salinity waters. Pursuant to a further interim agreement of the IBWC in 1972, the salinity of the waters delivered to Mexico was further reduced by passing to the river downstream of Morelos Dam an additional portion of the saline drainage waters and substituting additional waters of low salinity.

On August 30, 1973, agreement was reached by the two Governments under the terms of the 1944 Water Treaty for a "Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River." This agreement provided for immediate further reduction in the salinity of the waters delivered to Mexico, stipulating that the U.S. shall adopt measures to ensure that the approximately 1,360,000 acre-feet delivered upstream of Morelos Dam have an annual average salinity of no more than 115 ± 30 parts per million (ppm) over the annual average salinity of the Colorado River at Imperial Dam. The U.S. Congress in the *Colorado River Salinity Control Act* of June 24, 1974, as amended, authorized the Bureau of Reclamation, to construct the works required to implement the agreement in the U.S. The terms of the agreement were immediately put into effect by interim measures consisting of the bypassing to the Gulf of California of all of the saline drainage waters which created the problem and substituting water of low salinity.

For this purpose the authorization included extension in the U.S. and in Mexico of the bypass drain to carry the drainage and later the reject waters from a desalting plant to the Santa Clara Slough in Mexico on the Gulf of California. The extension of the bypass drain was completed in June 1977.

Compliance with the agreement is jointly monitored by the U.S. and Mexican Sections of the IBWC. The waters delivered upstream from Morelos Dam are jointly sampled each weekday and they are analyzed for their salt content by the U.S. Section and the Mexican Section, and the results are jointly compared by the IBWC. The records show that the U.S. is fully complying with the terms of the agreement.

The Congress of the U.S. recognized that to continue the interim measures to implement the agreement with Mexico would result in a serious loss of water needed to meet uses within the Colorado River Basin in the U.S. To prevent such loss, the *Colorado River Salinity Control Act* authorized the Secretary of the Interior to construct, operate and maintain a desalting plant in the U.S. to reduce the salinity of drain waters from the Wellton-Mohawk Irrigation and Drainage District, to enable their delivery to Mexico within the terms of the agreement. Completed in 1992, the desalting plant is located approximately 1 mile to the east of the Andrade POE in Arizona. However, the plant is currently on standby, having only operated for a period of months in 1993 before closure due to operational issues (Megdal 2004). The bypass drain, constructed as an interim measure, continues to allow the U.S. to meet treaty requirements.

3.3.1.3 Floodplains

The Colorado River floodplain is approximately 0.25 miles wide in the region of influence. The floodplain is designated as "Zone A" by the Federal Emergency Management Agency (FEMA; FEMA 1985), "areas of 100-year flood; base flood elevations and flood hazard factors not determined."

The Andrade POE and peninsula area are approximately 15 feet above the average water level of the Colorado River and Alamo Canal. The Imperial Irrigation District considers the chances of flooding remote (Bowles 2004). Various dams and canals that contain and divert water from the Colorado River would be employed to contain floodwaters within the river channel.

Along the eastern edge of the Colorado River is a levee which protects land to the east, including Andrade, from 100-year floods (FEMA 1985).

3.3.1.4 Irrigation Canals

A number of irrigation canals are present in the Andrade area. In 1901, the 60-mile long Alamo Canal was completed to deliver Colorado River water to California's Imperial Valley for irrigation. A remnant of this canal is located adjacent to the Andrade POE. About 50 miles of the canal coursed through Mexico. In 1905, the Colorado River flooded, eroding the opening to the canal, and an uncontrolled torrent flowed through and created the California's Salton Sea before the river was pushed back into its normal channel (Colorado River Water Users Association 2005).

In 1919, the Imperial Irrigation District secured federal government approval to construct the Imperial Dam on the Colorado River (upstream from the Andrade POE). From the Imperial Reservoir, water would be diverted into the All-American Canal, 82 miles long and 0.4 miles west of the current POE at its closest distance. The canal was completed in 1940 to transport water to the Imperial Valley, replacing the Alamo Canal (Imperial Irrigation District 2005). The Alamo Canal was abandoned and is no longer connected to the Colorado River in the U.S. Parts of the canal are still used in Mexico, though no connection exists with the portion of the canal adjacent to the Andrade POE. The capacity of the All-American Canal is 10,155 cfs (Imperial Irrigation District 2005).

The Cooper Lateral flows along the eastern edge of the levee that runs along the Colorado River. The Cooper Lateral is part of a network of canals in the Yuma Valley that provide irrigation for agriculture. Annual mean flow in the Cooper Lateral is approximately 1 cfs (United States Geological Survey [USGS] 2004).

3.3.1.5 Wetlands

A biological survey determined that there are no jurisdictional wetlands within the region of influence (Guigliano 2004). Hydrophytic vegetation is confined to narrow strips along the edges of the Alamo Canal and Colorado River.

3.3.2 Groundwater

The hydrology of the Yuma area is described in *Geohydrology of the Yuma Area, Arizona and California* (Olmsted 1973). The summary provided is derived from this source, except where noted otherwise. The region of influence for groundwater is the Yuma Valley Groundwater Basin near the Andrade POE.

The Yuma Valley Groundwater Basin underlies a southeast trending valley in southwest Yuma County, Arizona, and southeast Imperial County, California. The primary water-bearing units in the basin exploited for groundwater production are the Older and Younger Alluviums, which have been subdivided into the following characteristic hydrologic units:

- **Wedge Zone.** Includes the lower portion of the Older Alluvium, and comprises a significant source of groundwater; generally this unit is finer grained at greater depth.
- **Coarse Gravel Zone.** Very productive, highly permeable alluvial deposits, which overlay the Wedge Zone. Comprises the primary source of groundwater in the Yuma area and consists of highly permeable sands and gravels.
- **Upper Fine Grain Unit.** The Coarse Gravel Zone is separated from the Upper Fine Grain Unit by laterally extensive clay layers (Clays A and B), which comprise the lower

portion of the Upper Fine Grain Unit. The Upper Fine Grain Unit includes much of the Younger Alluvium and includes clays to fine sands, and represents a minor component of the groundwater production.

The hydraulic characteristics for the Upper Fine Grain Unit vary, depending upon the nature and extent of clay deposits. Since few wells exploit this layer for water production exclusively, little hydraulic testing has been completed for this unit. The Arizona Department of Water Resources, in conjunction with the Bureau of Reclamation, completed several pump tests for the fine sand component of the Upper Fine Grained Unit in 1991 in the Yuma area as part of the development of the Yuma Area Groundwater Flow Model. These tests indicated a hydraulic transmissivity (a measure of the aquifer's ability to transmit water) of 5,000 to 10,000 cubic feet per foot per day, which represents a hydraulic conductivity (a measure of sediment permeability) of 170 to 670 feet per day.

The Coarse Gravel Zone has been extensively exploited for groundwater production throughout the Yuma area. Reported values of transmissivity vary from 20,000 to 100,000 square feet per day. Hydraulic conductivity values for the Coarse Gravel Zone have been reported in the range of 200 to 1,000 feet per day.

In general, both of these hydrologic units are highly transmissive productive units. Well yields are generally high, although surface water from the Colorado River supplies the majority of water use in the Yuma area.

3.3.2.1 Recharge and Discharge Areas

Natural recharge to the basin is derived mainly from subsurface inflow from the Ogilby Groundwater Basin on the west and infiltration of surface runoff through alluvial deposits at the base of the bordering mountains. Additional recharge comes from seepage loss from the All-American Canal and other unlined canals and from the percolation of irrigation return flows. Along the Colorado River, fluctuations in the elevation of the water table are in direct response to the amount of flow in the river. In general, groundwater moves southeast and is discharged to the Colorado River (California Division of Planning and Local Assistance 2004).

3.3.2.2 Groundwater Level Trends

Records of historical groundwater levels in the basin intermittently span the period from about 1962 through 2002. In general, the records of 49 wells show that water levels have remained largely unchanged in those areas within the Colorado River floodplain near the Andrade POE. Depth to water remains shallow and ranges from 5 to 20 feet below the surface. In the few wells that exist north or west of the All-American Canal, records show water levels have also remained mostly unchanged or have increased slightly over the period of record. Depth to water in these areas varies greatly, but generally ranges from about 40 to 240 feet below the surface (California Division of Planning and Local Assistance 2004).

3.3.2.3 Groundwater Quality

Groundwater character varies within the basin, but in general, the predominant cation (positively-charged ion) is sodium, and the predominant anion (negatively-charged ion) is either chloride or sulfate.

In general, the quality of groundwater in the Andrade POE area is marginal for domestic and irrigation uses because of elevated levels of total dissolved solids, chloride, sulfate, and percent sodium. Total dissolved solid levels range from about 600 to as much as 14,700 milligrams per liter (California Division of Planning and Local Assistance 2004).

3.4 Land Use

This section describes the general land use and ownership of areas at and near the Alternative sites. Data are included regarding the Fort Yuma Indian Reservation (Quechan Indian Tribe) in California (a small portion of the Fort Yuma Indian Reservation also extends into Arizona), Yuma County and the City of Yuma in Arizona, and surrounding areas that may be useful as general information in describing the project area and the impacts in the region.

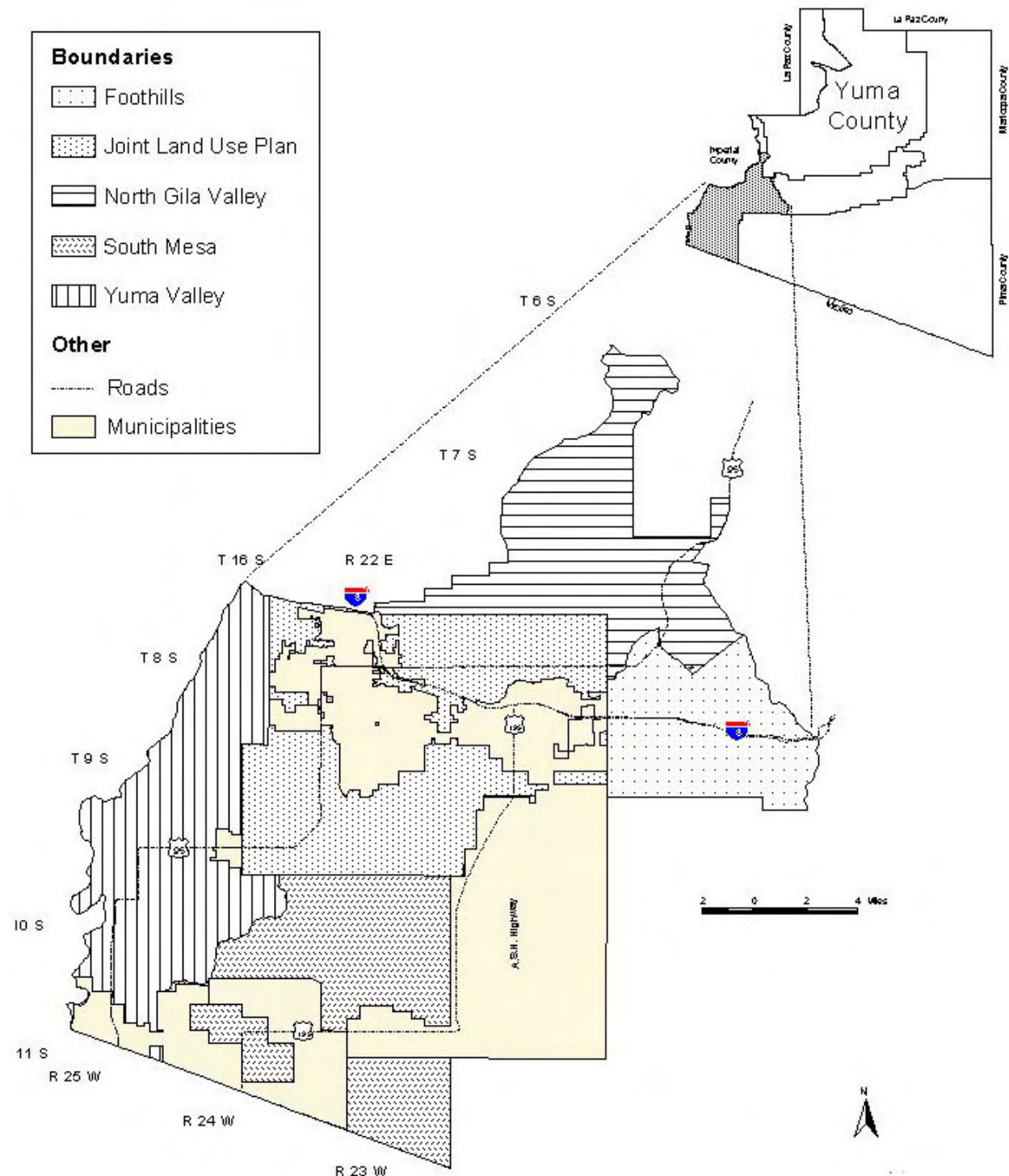
There is no general or land use plan for the Fort Yuma Indian Reservation. The Fort Yuma Indian Reservation consists of 44,000 acres and is the second largest reservation in the state of California. Land development decisions are made on the basis of compatibility with existing land uses (Golding 2004). In general, the tribal President endorses development on tribal lands with the assistance of the tribal Economic Development Administration. Prominent land developments to date include the Paradise Casino and approximately 700 acres of leased land used for agriculture. Currently, the leased land produces approximately 50 percent of the tribe's food supply, though it is leased to a non-Indian farmer (Inter Tribal Council of Arizona 2005).

The construction sites under Alternatives 1 through 4 would be located in the southwestern portion of the Fort Yuma Indian Reservation. With the exception of the Quechan parking lot, this land is not currently utilized for economic activity. The biological aspects of the area are discussed in Section 3.5.

Yuma County is comprised of approximately 3,530,637 acres of primarily Sonoran Desert with low desert hills along with the inclusion of rugged mountains. The valley regions within Yuma County contain arable land, which are irrigated with Colorado River water. Agriculture, tourism, military, and government are Yuma County's principal industries. Overall, this land supports a population of 160,026, approximately 3 percent of the State of Arizona's population. This population density is approximately 29 people per square mile. Most of the land in Yuma County is under government control; approximately 84 percent of the land is under Federal control, 6 percent under state control and the 10 percent under private control.

Land use in the City and County of Yuma illustrates a wide range of development. Yuma City and County have developed a joint land use plan that provides a common "blueprint" for land use and development within and around the City of Yuma. Under this plan, the primary economic assets of the area—agriculture, the airstation/airport and tourism—are protected, reinforced, and enhanced by new industrial opportunities that lead to year-round employment.

The Yuma County 2010 Comprehensive Plan (Yuma County 2003) divides the county into specific regions. Because the county area is so large, it has been further divided into sub-regional planning areas. In Section 2.5 of this plan, the Yuma, Foothills, and South County Planning Areas are closest to the project area. Land use in the Yuma, Foothills and South County Planning Area illustrated in Figure 3.4-1 is dominated by private lands with government lands on the periphery. Most of the recent population growth in Yuma County has occurred in this area. The area has experienced rapid residential growth on the South Mesa, an increase in permanent site built dwelling units, conversion of agricultural land to residential use, diminished water quality,



Source: Yuma County 2003

Figure 3.4-1. Yuma Foothills and South County Sub-Regional Planning Areas

and an increased demand for infrastructure services. Figure 3.4-2 illustrates the Yuma Valley Sub-Regional area. Its land, along the western edge of the county near the project area, is dominated by agricultural/rural residential use.

The area that would be occupied by the POE and access road under Alternative 5 is currently utilized and designated in the Yuma County 2010 Comprehensive Plan as agricultural land, and classified by the Natural Resources Conservation Service as prime farmland (Melcher 2005).

3.5 Biological Resources

The region of influence for assessing direct and indirect impacts for vegetation is the area that would be directly disturbed by construction and operation of the alternatives. Vegetation would be affected only in the immediate area of disturbance from construction and operation. The region of influence for assessing impacts to wildlife extends 0.5 mile beyond the areas of immediate construction, maintenance, and operation disturbances. This is considered the maximum distance at which project activities could affect any species.

3.5.1 Vegetation

Vegetation in the region of influence consists mostly of native and invasive species growing on disturbed land near and on the property of the existing port, the peninsula area, and along the east side of the Colorado River. Land east of the Colorado River levee, site of the facility under Alternative 5, is cultivated with row crops.

A pedestrian biological survey was conducted November 17 and 18, 2004. The survey recorded vegetation types, fauna, and habitats in the region of influence.

3.5.1.1 West of Alamo Canal

The area to the west of the Alamo Canal is comprised of the existing facility, the Quechan parking lot, and a narrow strip of vegetation between SR-186 and the Alamo Canal to the north of the existing facility. The Quechan parking lot is devoid of vegetation. Vegetation at the site of the existing facility is non-native, including tamarisk (*Tamarix sp.* or salt cedar), phragmites (*Phragmites australis* or common reed), and landscape plants. Along the strip between SR-186 and the Alamo Canal is saltbush (*Atriplex sp.*), mesquite (*Prosopis glandulosa*), coyote bush (*Baccharis pitularis*), and phragmites (*Phragmites australis* or common reed) along the Alamo Canal.

3.5.1.2 Peninsula

The peninsula is at least 50 percent disturbed because of traffic from border patrol vehicles and undocumented immigrants. Some refuse dumping has also taken place in this area. Vegetation in the western part of the peninsula is a disturbed tamarisk woodland with a dominant atriplex scrub sublayer consisting of atriplex, mesquite, coyote bush, and phragmites (common reed) along the Alamo Canal. The eastern portion of the peninsula has evidence of previous fires with atriplex as the dominant scrub, tamarisk as the dominant tree, a few willows (*Salix sp.*) near the edge of the Colorado River, phragmites near the river, palo verde (*Cercidium sp.*), and arrow weed (*Pluchea sericea*).

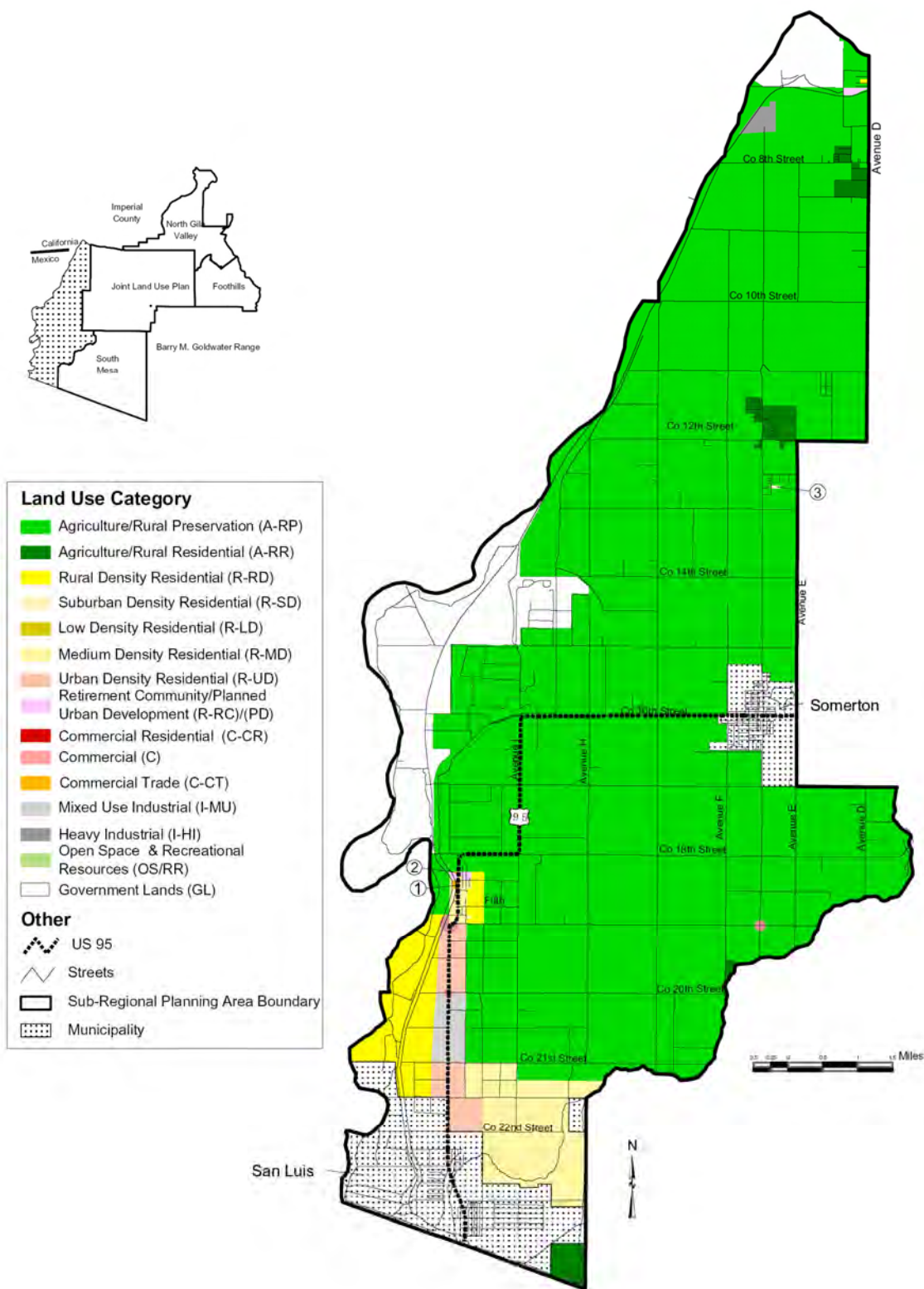


Figure 3.4-2. Land Use Plan in Yuma Valley Sub-Regional Planning Area

3.5.1.3 East of Colorado River

East of the Colorado River, between the river and levee, are cottonwoods (*Populus fremontii*) and willows (dominant trees), arrow weed, phragmites, tamarisk, mulefat (*Baccharis salicifolia*), atriplex, and mesquite. There has been some refuse dumping in this area and evidence of fires. There has also been some planting of cottonwood trees, though invasive plants have not been removed.

3.5.1.4 Invasive Species

Executive Order 13112 describes duties of Federal agencies regarding invasive species, including, where practicable, preventing the introduction of invasive species; detecting and responding rapidly to and controlling populations of such species in a cost-effective and environmentally sound manner; monitoring invasive species populations accurately and reliably; and providing for restoration of native species and habitat conditions in ecosystems that have been invaded. Invasive species identified in the biological survey include phragmites and tamarisk. These species have the potential to cause environmental harm through the displacement of native species and alteration of native habitat.

3.5.1.5 Arizona Native Plant Law

Many of the desert plants in Arizona fall into one of five groups protected from theft, vandalism, and unnecessary destruction under the Arizona Native Plant Law. Although this law does not apply to Federal projects, GSA would comply with the Arizona Native Plant Law, where feasible. The law states that protected plants can be removed only with permits from the Arizona Department of Agriculture. All plants protected under the Arizona Native Plant Law must be salvaged if they would be destroyed by a project. The following list describes the five categories of protected plants:

1. Highly safeguarded native plants include plants whose prospects for survival in the state are in jeopardy or which are in danger of extinction throughout all or a significant portion of their ranges, and those native plants that are likely in the foreseeable future to become jeopardized or in danger of extinction throughout all or a significant portion of their ranges.
2. Salvage restricted plants are those native plants that are not included in highly safeguarded category but are subject to high potential for damage by theft or vandalism.
3. Export restricted plants are those protected native plants that are not included in the highly safeguarded category but are subject to overdepletion if their exportation from the state is permitted.
4. Salvage assessed plants are those plants that are not included in the highly safeguarded or salvage restricted categories but have sufficient value if salvaged to support the cost of salvage tags and seals.
5. Harvest restricted plants are those not included in the highly safeguarded category but are subject to excessive harvesting or overcutting because of the intrinsic value of their byproducts, fiber, or woody parts.

The only plant present within the region of influence in Arizona that could be protected under the native plant law is mesquite (*Prosopis glandulosa*), of which a variety (*Prosopis glandulosa* var.

torreyana) is a salvage assessed plant. Further evaluation would need to be performed to determine the variety of mesquite.

3.5.2 Wildlife

Wildlife habitat in the region of influence includes sparse, dry Sonoran desertscrub communities on flat, upland areas, and riparian-wetland complexes along the Colorado River. Common wildlife species known or likely to be present in the region of influence are listed in Table 3.5-1.

3.5.3 Fisheries

Although there are no managed fisheries in the region of influence, there are viable fish populations in the Colorado River. No fishery surveys have been conducted for these waters, and fishing is not encouraged; however, recreational fishing does take place (Arizona Game and Fish Department [AGFD] 2005). Fish present in the Colorado River include largemouth bass, striped bass, crappie, sunfish, channel catfish, flathead catfish, and tilapia.

3.5.4 Special-Status Species

Special-status species that may occur in the region of influence were identified through the AGFD's Heritage Data Management System and the California Natural Diversity Data Base (AGFD 2005, California Department of Fish and Game 2005), and the biological survey conducted by GSA. Based on habitat features of the region of influence and habitat affinities, special-status species with the potential to occupy suitable habitat in the region of influence are listed in Table 3.5-2.

Special-status animal species listed in Table 3.5-2 include the southwestern willow flycatcher and Yuma clapper rail, both of which are listed as endangered under the *Endangered Species Act* of 1973 (ESA) (16 U.S.C. §§1531-1544). The western yellow-billed cuckoo is a candidate for listing under the ESA.

3.5.4.1 Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher breeds in riparian areas along rivers, streams, or other wetlands, where dense trees and shrubs are established, near or adjacent to surface water or underlain by saturated soil. Historical records indicate the former range of the southwestern willow flycatcher in Arizona included portions of all major river systems (Colorado, Salt, Verde, Gila, Santa Cruz, and San Pedro Rivers) and major tributaries, such as the Little Colorado River and headwaters, and White River. Critical habitat has been designated for the flycatcher but none is in the region of influence.

Willow flycatchers were not noted during the biological survey. Habitat within the region of influence is marginal because of the low stature of the vegetation and absence of moist soil within the tree patches.

Table 3.5-1. Common Wildlife Species Known or Likely to be Present in the Region of Influence

Common Name	Scientific Name
Mammals	
Coyote	<i>Canis latrans</i>
Blacktailed jackrabbit	<i>Lepus californicus</i>
Desert cottontail	<i>Sylvilagus auduboni</i>
Merriam's kangaroo rat	<i>Dipodomys merriami</i>
White-throated woodrat	<i>Neotoma albigula</i>
Raccoon	<i>Procyon lotor</i>
Arizona cactus mouse	<i>Peromyscus eremicus</i>
Round-tailed ground squirrel	<i>Spermophilus tereticaudus</i>
Birds	
Gambel's quail	<i>Callipepla gambelii</i>
Roadrunner	<i>Geococcyx californianus</i>
White-winged dove	<i>Zenaida asiatica</i>
Turkey vulture	<i>Cathartes aura</i>
Snowy egret	<i>Egretta thula</i>
Great egret	<i>Ardea albus</i>
Osprey	<i>Pandion haliaetus</i>
Golden eagle	<i>Aquila chrysaetos</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Mourning dove	<i>Zenaida macroura</i>
LeConte's thrasher	<i>Toxostoma lecontei</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Lesser nighthawk	<i>Chordeiles acutipennis</i>
Cactus wren	<i>Campylorhynchus brunneicapillus</i>
Black-tailed gnatcatcher	<i>Polioptila melanura</i>
Phainopepla	<i>Phainopepla nitens</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Reptiles and Amphibians	
Gopher snake	<i>Pituophis melanoleucus</i>
Western diamondback rattlesnake	<i>Crotalus atrox</i>
Western whiptail	<i>Cnemidophorus tigris</i>
Common kingsnake	<i>Lampropeltis getulus</i>
Woodhouse's toad	<i>Bufo woodhousei</i>

Source: Brown 1982 and Guigliano 2004

Table 3.5-2. Special-Status Animal Species That May Occur in the Region of Influence

Common Name	Scientific Name	Status	Habitat
Birds			
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E, WSC	Riparian areas with dense mesquite, cottonwood, willow, or tamarisk
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	E, WSC	Marshes with dense vegetation; requires mudflats, sandbars, and woody vegetation for nesting
Great egret	<i>Ardea alba</i>	WSC	Marshes, nests in trees and shrubs
Snowy egret	<i>Egretta thula</i>	WSC	Marshes; nests in trees and shrubs
California black rail	<i>Laterallus jamaicensis coturniculus</i>	CT	Perennial wetlands
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C, WSC	Riparian areas with dense mesquite, cottonwood, or willow
Reptiles			
Flat-tailed horned lizard	<i>Phrynosoma mcallii</i>	WSC	Sandy areas in desertscrub west of Gila Mountains

E—endangered under *Endangered Species Act*; C—Candidate species under the *Endangered Species Act*; CT—California threatened species; WSC—Arizona State Wildlife Species of Concern.

Sources: AGFD 2005, California Department of Fish and Game 2005

3.5.4.2 Yuma Clapper Rail (Endangered)

Yuma clapper rail habitat includes both freshwater and brackish marshes with dense vegetation. Nesting is typically from March through early July. Nests are constructed in marsh vegetation at the edge of the water. Crayfish are their primary prey.

No Yuma clapper rails or nests were identified during the biological survey. Nests have been documented in wetlands along the Gila River (Western 2005), outside the region of influence approximately 10 miles east of the Andrade POE.

3.5.4.3 Great Egret (Arizona Species of Concern) and Snowy Egret (Arizona Species of Concern)

The great egret and snowy egret were identified in the region of influence during the biological survey and are known to inhabit riparian and wetland habitats along the Colorado River and adjacent agricultural areas. Egrets are colonial breeders, usually constructing nests in trees or shrubs, but sometimes on the ground. A snowy egret was observed along the east side of the Colorado River during the biological survey. Exposed mudflats and open water created by vegetation removal are commonly frequented by both species of egret, where they forage for fish and invertebrates.

3.5.4.4 California Black Rail (California Threatened)

California black rails are found in perennial wetlands dominated by juncas and cattails (*Typha latifolia*) and often with other associated plants such as scirpus, eleocharis and paspalum. These wetlands are in open grasslands, grazed pastures or oak savannas. Nesting habitat is characterized by water depths of less than 1.2 inches that do not fluctuate during the year, and by dense vegetation providing adequate cover. Although California black rails have been sighted along the Colorado River near Yuma, there does not appear to be suitable habitat within the region of influence, and none was observed during the biological survey.

3.5.4.5 Western Yellow-billed Cuckoo (Candidate)

The western yellow-billed cuckoo breeds and forages in dense riparian shrub and tree communities dominated by cottonwoods and willows. Marginally suitable habitat may exist for the yellow-billed cuckoo, which are known to build nests in salt cedar if no other trees are available. However, this species is not expected to occur due to the low density of cottonwood/willow communities and lack of heavily vegetated areas within or adjacent to the region of influence, and none were observed during the biological survey.

3.5.4.6 Flat-tailed Horned Lizard (Arizona Species of Concern)

The flat-tailed horned lizard is restricted to desert habitats with loose, fine, windblown sand deposits. It is rare on large dunes, usually occurring around packed sand or desert pavement overlain with fine blown sand. It is commonly associated with creosote bush and white bursage. Preferred habitat (i.e., wind-blown sand deposits) for the flat-tailed horned lizard is not present within the region of influence, and none were observed during the biological survey.

3.6 Cultural Resources

3.6.1 Introduction

Cultural resources are those aspects of the physical environment that relate to human culture, society, and cultural institutions that hold communities together and link them to their surroundings. Cultural resources include past and present expressions of human culture and history in the physical environment, such as prehistoric and historic sites, buildings, structures, objects, districts, natural features, and biota, which are considered important to a culture, subculture, or community. Cultural resources also include aspects of the physical environment that are a part of traditional lifeways and practices, and are associated with community values and institutions.

3.6.1.1 Cultural Resource Types

Cultural resources include prehistoric and historic resources and ethnographic resources. Prehistoric and historic resources are the tangible remains of past activities that show use or modification by people. They are distinct geographic areas that can include artifacts, features such as hearths, rock alignments, trails, rock art, railroad grades, canals, and roads, landscape alterations, or architecture. In general, prehistoric and historic resources are the loci of purposeful human activity that have resulted in the deposition of cultural materials beyond the level of a few accidentally lost artifacts. Deposits that do not meet this criterion are still cultural in nature, but are described as isolated occurrences. Prehistoric resources show use or

modification by people before the establishment of a European presence in the Lower Colorado River valley in the late 17th century. Historic resources show use or modification since the arrival of Europeans in the region.

The National Register of Historic Places (NRHP) is a listing of buildings, structures, sites, districts, and objects that are considered significant at a national, state, or community level. Cultural resources that are listed on the NRHP or have been determined eligible for listing have been documented and evaluated according to uniform standards, and have been found to meet criteria of significance and other requirements for listing. Cultural resources that meet the criteria and requirements for listing on the NRHP are called historic properties.

Cultural resources that have a direct association with a living culture may be considered ethnographic resources. Ethnographic resources are associated with the cultural practices, beliefs, and traditional history of a community. They are used within social, spiritual, political, and economic contexts, and are important to the preservation and viability of a culture. Examples of ethnographic resources include places that play an important role in oral histories or myths, such as a particular rock formation, the confluence of two rivers, or a rock cairn; large areas, such as landscapes and viewsapes; sacred sites and places important for religious practices; natural resources traditionally used by people such as plant communities or clay deposits; and places such as trails or camping locations. The components of an ethnographic resource can be man-made or natural. If an ethnographic resource is found to meet the criteria and requirements for listing on the NRHP, it is called a traditional cultural property (TCP). A TCP is generally defined as a property “that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (Parker and King 1990:1).

3.6.1.2 Cultural Resources and the Law

A number of Federal statutes address cultural resources and Federal responsibilities regarding them. The long history of legal jurisdiction over cultural resources, dating back to 1906 with the passage of the Antiquities Act (16 U.S.C. 431-433), demonstrates a continuing concern on the part of Americans for their cultural resources. Foremost among these statutes is the *National Historic Preservation Act* (NHPA) of 1966, as amended (16 U.S.C. 470). Section 106 of this statute requires Federal agencies to take into account the effect of Federal undertakings on any property that is included in or eligible for inclusion in the NRHP. The regulations that implement Section 106 (36 CFR 800) describe the process for identification and evaluation of cultural resources, assessment of effects of Federal actions on historic properties or TCPs, and consultation to avoid, reduce, or mitigate adverse effects. The NHPA does not require preservation of cultural resources, but does ensure that Federal agency decisions concerning the treatment of these resources result from meaningful consideration of cultural and historic values, and identification of options available to protect the resources. Another important law, the *Archaeological Resources Protection Act* of 1979 (16 U.S.C. 470aa - 470mm) is the principal Federal statute protecting archaeological resources located on Federal and Indian lands.

3.6.1.3 Tribal Consultation

The Federal government recognizes its unique relationship with Native American tribal governments and respects tribal sovereignty and self-government. Various Federal statutes have

been enacted that establish and define a trust relationship with tribes. GSA acknowledges their responsibility to conduct government-to-government consultation with tribes for proposed Federal government actions. They understand that meaningful consultation and coordination with Native American tribes are not only good practice, but also lead to better government decisions. Specific statutes, regulations, and executive orders guide consultation with Native Americans to identify cultural resources important to tribes and to address tribal concerns about potential impacts to these resources. These include the NHPA, *American Indian Religious Freedom Act* of 1978 (42 U.S.C. 1996), *Native American Graves Protection and Repatriation Act* of 1990 (25 U.S.C. 3001), Executive Order 13007 Indian Sacred Sites (61 FR 26771), and Executive Order 13175 Consultation and Coordination with Indian Tribal Governments (65 FR 67249). They call on agencies to consult with Native American tribal leaders and others knowledgeable about cultural resources important to them. Consultation is conducted for Federal actions, such as the decisions to be made with regard to the proposed alternatives, with the potential to affect locations of traditional concern, religious practices and areas where they are carried out, areas of traditional cultural uses, archaeological sites, and other modern and ancestral tribal resources. GSA takes government-to-government consultation very seriously. Consultation with Tribes was initiated during the Feasibility Study and has continued throughout development of the EIS.

3.6.2 Definition of the Region of Influence

Information on cultural resources that could be impacted by the proposed alternatives was collected through a systematic cultural resource inventory of the Area of Potential Effect. For cultural resource discussions in this EIS, the region of influence is equivalent to the Area of Potential Effect. The systematic inventory included a Class I records search, Class III archaeological field survey, and consultation with tribes to identify potentially effected ethnographic resources. The region of influence includes the project areas for all of the proposed alternatives.

The results of the Class I records search and Class III archaeological field survey are described in a draft report (Goldstein 2005). This report has been reviewed by GSA, BIA, Bureau of Reclamation, and Bureau of Land Management (BLM). GSA is also consulting with interested Tribes to determine if there would be a potential for effects to tribally important ethnographic resources from the proposed alternatives. GSA will submit the report, along with information on potential effects to tribal ethnographic resources, to the Arizona and California State Historic Preservation Officers (SHPOs) for consultation to comply with Section 106 of the NHPA. Concurrence from the SHPOs on potential effects to cultural resources and the treatment of affected resources will be obtained prior to initiating any construction activities associated with the proposed alternatives.

3.6.3 Prehistoric and Historic Resources Identified in the Proposed Alternatives

A cultural resource inventory was conducted for the proposed alternatives to identify prehistoric and historic resources (Goldstein 2005). The inventory boundaries included more area than would be used by the construction and operation of the alternatives, thus not all of the resources identified during the survey would necessarily be impacted by the project. This was done to allow for possible minor shifting of construction locations later on to avoid impacts to other

resources. A large amount of space within the project areas was not inventoried due to dense vegetation (usually along the river) or due to lack of permission from private landowners. Fifty percent of the 43 acres in California were inventoried, the remaining acres being too overgrown with vegetation to observe the ground surface. In Arizona, 113 acres of the total 237 acres are located on private lands where the landowner did not give permission for access. Of the 124 remaining acres, only 25 acres were inventoried because the rest was covered with dense vegetation or crops. A total of eight prehistoric and historic resources were identified, seven sites and one isolated occurrence. Table 3.6-1 lists each resource, land status, resource responsibility, its recommended eligibility to the NRHP, and the alternatives that contain the resource within their project areas. Table 3.6-2 compares the resources located within the project areas of the five alternatives.

Table 3.6-1. Prehistoric and Historic Resources Identified In the Surveyed Area

Resource #	Description	Land Status	Resource Responsibility	NRHP Eligibility	Alternative Project Areas
(pending)	Inter-California Railroad	Quechan	BIA	Eligible; A,D	Alts. 3 and 4
(pending)	Transmission line	Quechan	BIA	Unknown	Alts. 3 and 4
(pending)	Andrade POE	Quechan	GSA	Unknown	all five alts.
(pending)	Alamo Canal	Quechan	BOR	Eligible; A,C	Alts. 1, 2, 3, and 4
AZ X:6:15 (ASM)	Yuma Valley Levee	BLM	Bureau of Reclamation ROW	Eligible; A,C	Alt. 5
AZ X:6:43 (ASM)	Yuma Valley Railroad	BLM	Bureau of Reclamation ROW	Eligible; A,D	Alt. 5
AZ X:6:101 (ASM)	Cooper Lateral	BLM	Bureau of Reclamation ROW	Eligible; A	Alt. 5
IO #1	1 Lower Colorado Buffware sherd	Quechan	BIA	Not eligible	Alts. 3 and 4

Source: Goldstein 2005

ASM—Arizona State Museum; IO—isolated occurrence; BIA—Bureau of Indian Affairs; BLM—Bureau of Land Management, Yuma Field Office; CBP—Bureau of Customs and Border Protection; Quechan—Fort Yuma Quechan Tribe; NRHP—National Register of Historic Places; ROW—Right of Way; POE—Port of Entry

Table 3.6-2 Resources Found in the Project Areas of Each Alternative

	Inter-California Railroad	Transmission line	Andrade POE	Alamo Canal	Yuma Valley Levee	Yuma Valley Railroad	Cooper Lateral	Power Colorado Buffware sherd
Alternative 1			x	x				
Alternative 2			x	x				
Alternative 3	x	x	x	x				x
Alternative 4	x	x	x	x				x
Alternative 5			x		x	x	x	

Source: Goldstein 2005

POE—Port of Entry

Segments of two historic-age trails, the Juan Bautista de Anza National Historic Trail and the Butterfield Overland Mail Route, cross the Colorado River just to the north of the project area. The general locations of these trail segments are known from documentary evidence that references topographical, geological, and settlement features of the area; however, in this area, there is no known physical evidence for the trails. Even without physical evidence of the trails, because it is known that the trails crossed the river in this area, interpretive value remains for these early transportation routes in their relationship to the natural features in the landscape and especially to the crossing of the river. Because the trails do not enter the project area, no effects would occur to the cultural and historical interpretations of these trails and they are not analyzed further.

All of the identified resources were fully recorded and evaluated to determine if they are eligible for listing on the NRHP. Resources that are eligible are afforded consideration under the NHPA. If a Federal action will affect an eligible resource, then measures must be considered to avoid, reduce, or mitigate the effect. At this time, the recommendations of NRHP eligibility as presented here are preliminary, as they are primarily based on archaeological and historical significance only. Ethnographic information on the traditional cultural importance of the resources could change the determinations, causing additional resources to be determined eligible. Information gathered from consultation with interested Tribes and from the Tribes' review of the report could provide this information. Final determinations of eligibility will be included in the Final EIS.

3.6.3.1 Alternatives 1 and 2

Two historic resources were identified within the project areas for Alternatives 1 and 2. The existing Andrade facility is of unknown NRHP eligibility and the Alamo Canal is recommended as eligible to the NRHP.

3.6.3.2 Alternatives 3 and 4

One prehistoric and four historic resources are located within the project area for Alternatives 3 and 4. The prehistoric resource is the isolated occurrence and is not eligible for the NRHP. The existing Andrade facility and the transmission line are of unknown NRHP eligibility. The existing facility was constructed in 1958. If the facility exists in 2008, GSA would perform an

assessment to determine NRHP eligibility, and include mitigation measures in any subsequent actions if the facility is determined to be eligible. The Alamo Canal and the Inter-California Railroad are both recommended as eligible for listing on the NRHP.

3.6.3.3 Alternative 5

Four historic resources were identified within the project area for Alternative 5. The existing Andrade facility is of unknown NRHP eligibility. The Yuma Valley Levee, Yuma Valley Railroad, and the Cooper Lateral are all recommended as eligible for listing on the NRHP.

3.6.4 Ethnographic Resources Identified in the Proposed Alternatives

Consultation with interested Tribes is being conducted for the project. The purpose of the consultation is to elicit from Native American representatives concerns for potential impacts from the proposed alternatives on resources that are significant to the Tribes, and to identify possible mitigation measures to address any potential impacts. Consultation will continue as the EIS study progresses, and information will be included in the Section 106 consultation with the Arizona and California SHPOs and in the Final EIS.

3.6.4.1 Consultation Efforts Conducted

Twenty-one Native American tribes have been contacted as potentially interested in the proposed alternatives. They were selected based on similar ethnographic studies conducted in the region for Antelope Hill (Schneider and Altschul 2000), the Wellton-Mohawk Title Transfer EIS (Bureau of Reclamation 2003), and the Wellton-Mohawk Generating Facility EIS (Western 2005). The tribes contacted include:

- Ak-Chin Indian Community
- Campo Band of Kumeyaay Indians
- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- Fort McDowell Yavapai Tribe
- Fort Mohave Indian Tribe
- Fort Yuma Quechan Indian Tribe
- Gila River Indian Community
- Hia-C'ed O'odham Alliance
- Hopi Tribe
- Hualapai Indian Tribe
- Navajo Nation
- Pascua Yaqui Indian Tribe
- Salt River Pima–Maricopa Indian Community

- San Carlos Apache Tribe
- Tohono O’odham Nation
- Tonto Apache Tribe
- Viejas Band of Kumeyaay Indians
- Yavapai-Apache Nation
- Yavapai-Prescott Indian Tribe

3.6.4.2 Continuing Efforts for Tribal Consultation

Consultation with the interested Tribes is still in progress. Copies of the cultural resource inventory report will be provided to those tribes that request to review and comment on it. The objectives behind providing the report to the tribes are two-fold: (1) for the tribes to review the report and provide comments, and (2) for the tribes to use the information contained in the report to assist them during the consultation process. Any report-specific comments received from the tribes will be addressed prior to submittal of the reports to the SHPO. Also, any appropriate information gained through the consultation process that would influence the NRHP eligibility of specific sites will be added to the report prior to submittal to the SHPO.

The on-going consultation will continue to focus on the two objectives described at the beginning of this section. It is hoped that the information contained in the cultural resource inventory report will aid the tribes in determining what their concerns are for cultural resources important to them. Further contacts with the tribes for the EIS will likely include meetings, field visits, and telephone conversations. For any cultural resources identified by the tribes as important, consultation will include identifying potential impacts the proposed alternatives would have on those resources and any measures that would be appropriate to avoid, reduce, or mitigate those impacts.

3.7 Visual Resources

This section discusses the existing visual resources in the vicinity of the project area. The discussion includes evaluation of the quality of the existing landscape and the sensitivity of the existing visual resources to changes associated with the proposed alternatives.

In evaluating the visual quality of and modifications to the existing landscape, the following aesthetic values are considered:

- Form—topographical variation, mountains, valleys
- Line/Pattern—canals, roads, and transmission line corridors
- Color/Contrast—brightness, diversity
- Texture—vegetation, buildings, disturbed areas

The sensitivity of the existing visual resources to changes associated with the proposed alternatives is based upon a number of factors:

- The extent to which the existing landscape is already altered from its natural condition

- The number of people within visual range of the area, including residents, highway travelers, and those involved in recreational activities
- The degree of public concern or agency management directives for the quality of the landscape

The project area is west of Yuma, Arizona. The area is characterized by an alluvial valley along the course of the Colorado River. The project area is relatively flat with Pilot Knob rising approximately 740 feet above the current POE approximately 2 miles to the northwest. Mountain ranges are visible across the Yuma Valley approximately 20 miles to the east, part of a series of southeast/northwest-trending mountain ranges separated by broad alluvial valleys characteristic of the southern basin and range physiographic province (Figure 3.7-1) (Statistical Research 2003).

The project area contains mostly disturbed vegetation (particularly on the Fort Yuma Indian Reservation) due to past and ongoing activities associated with border patrol. Vegetation consists mostly of salt cedar, coyote bush, and mesquite. Areas actively patrolled have been denuded of vegetation (Figure 3.7-2). In the Arizona portion of the project area, land is used primarily for cultivation of row crops, although structures associated with the desalinization plant described in Section 3.3.1.2 are located approximately one-half mile north of the site of Alternative 5. The



Figure 3.7-1. View of Alternative 5 Area from River Levee Facing East



Figure 3.7-2. Salt-Cedar Vegetation and Denuded Area on Peninsula

Colorado River floodplain contains scattered, small willows and cottonwoods (Figure 3.7-3). The width of the floodplain is controlled by a large levee to the east.

There are no eligible or officially designated California Scenic Highways, Arizona State Byways, or Wild and Scenic Rivers in the surrounding area. There are no substantial facilities for recreational use (e.g., hiking or bicycle trails, parks).

3.8 Infrastructure

Infrastructure consists of buildings, utilities, and transportation corridors that support the operations of a facility. The region of influence for infrastructure mainly consists of the above-listed aspects of infrastructure near the Andrade POE, although some aspects (e.g., water usage) cover a broader area of potential influence.

3.8.1 Buildings

The Andrade POE facilities consist of three single-story buildings: the main building, Border Station Residence #1 (the customs building), and Border Station Residence #2. In addition, there are a number of portable storage units. The facilities discussed below are the primary buildings.



Figure 3.7-3. Colorado River Floodplain from River Levee Facing Northwest

3.8.1.1 Main Building

The main building is a single story structure, approximately 4,168 square feet in area, built in 1958, and modified several times over the years. The building is constructed of eight-inch thick concrete masonry units, which are exterior bearing walls. The exterior concrete masonry unit walls have a stucco finish, which is in need of repair in some areas. The roof sub-structure is constructed of plywood sheathing over a wood frame. The roofing system is composed of asphalt shingles. The floor has two different systems: plywood over wood framing, and a concrete slab on grade. There is a change in elevation at the site, which requires a step between the different floor elevations. A canopy was added at the south end of the building in 1967 and was later enclosed with wood framed walls. In addition, the main building has an attached canopy that covers the two primary vehicular lanes.

The main building houses the immigration, customs, and GSA functions. The U.S. Fish and Wildlife Service and USDA perform periodic inspections at the POE, but currently do not have office space.

The immigration area includes a pedestrian processing area, public pedestrian waiting area and work counter, workroom, public waiting area for vehicular traffic processing and work counter, and a supervisor's office.

The customs area includes a workroom, small storage room, public waiting area for vehicular traffic processing and work counter, pat-down area, and a holding cell with toilet. There is also one employee unisex restroom. On the exterior side of the building, there are men's and women's public restrooms.

The building's users have had to improvise on the use of space within the building. Throughout the building, space does not full comply with the *United States Land Port of Entry Design Guide*.

3.8.1.2 Border Station Residence #1

Border Station Residence #1 (the customs building) is a single story structure approximately 1,198 square feet in area, that was built in 1958. It was once an actual residence that was remodeled for office space in 1992. The building is constructed of eight-inch thick concrete masonry unit exterior bearing walls. The exterior walls have a stucco finish, which is in need of repair in some areas. As part of the remodel, the carport was replaced by a reinforced masonry addition. The addition houses a seizure storage room and a pat-down room. Adjacent to Residence #1 is the noncommercial secondary inspection area. Residence #1 contains the Port Director's office, a break room, a receptionist area, a canine office, storage supply room, a pat-down room, men's and women's staff toilet rooms, and a seizure storage room.

The main function of Residence #1 is to provide administrative and processing support for noncommercial vehicle inspections. Since the existing building is inadequate in size, some of these functions have to be performed in the main building. Throughout the building the spaces do not fully comply with the *United States Land Port of Entry Design Guide*.

3.8.1.3 Border Station Residence #2

Border Station Residence #2 is a single story building, approximately 1,198 square feet in area, that was built in 1958. The building is of similar construction and condition as Residence #1; however, it has never been renovated and is currently unoccupied. The building contains a living room, a kitchen/dining room, a utility room, three bedrooms, and a bathroom. There is an attached carport on the north side. The carport has been used primarily for storage. The carport and area around the exterior of the building are used for overflow parking.

3.8.1.4 Kennel

The kennel facility, constructed in the early 1980s, is a 200 square-foot building that has not had any major alterations or additions. The facility contains two day pens.

3.8.2 Access

Information on vehicular and pedestrian access to the facility is described below. Parking availability is also described. Additional information on transportation infrastructure is provided in Section 3.9.

3.8.2.1 Vehicular Access

California I-8 runs in an east-west direction and connects to SR-186. The SR-186 is a two-lane paved road that runs north/south and is approximately 2.1 miles in length. This route provides southbound and northbound site access and egress from I-8 to the existing Andrade POE.

Northbound vehicular access from Mexico begins with Second Street in Algodones. Second Street has one northbound lane that links to the Andrade POE and expands to three lanes upon entering the U.S. inspection facility. Upon leaving the inspection facility, this road becomes SR-186.

3.8.2.2 Pedestrian Access

SR-186 does not provide sidewalks for pedestrians. Pedestrians traveling southbound approach the POE along the unpaved shoulder of the highway. To the west of the POE is a parking lot that is owned and operated by the Quechan Tribe. After parking, the pedestrians walk along the only sidewalk into Algodones, Baja California. Currently, there are no U.S. southbound pedestrian inspection facilities.

Pedestrians traveling northbound on Second Street from Algodones enter a fenced pathway that leads them to the U.S. inspection facility. After exiting the inspection facility, pedestrians cross the SR-186 to access the Quechan Tribe parking lot.

3.8.2.3 Parking

The Quechan Tribe parking lot is located west of SR-186 across from the Andrade POE. The Quechan Tribe charges a fee to the public for parking. Currently, there are approximately 1,044 parking spaces available. Additionally, vehicles park illegally along both sides of SR-186.

CBP agents must double-park in small parking lots behind the main building and Border Station Residence #1. Since there are an insufficient number of spaces, not all agents can park during shift changes. The driveway and front yard at Border Station Residence #2 are used as additional parking areas.

3.8.3 Utilities

3.8.3.1 Water and Wastewater

Water for the POE is supplied by two six-inch wells located on the north edge of the facility, one for landscaping and one for sanitary uses. These wells are approximately 200 feet deep. The water is chlorinated, softened, and pressurized with a hydro-pneumatic tank located in a small pump house prior to being distributed to the various buildings on the site. The system was constructed in 1973. Recently, water samples were found to be contaminated by fecal coliform. As a result, bottled water is regularly delivered for drinking and hand washing.

Sewage generated by the facility flows into a 3,000-gallon septic tank and then to a disposal field with four 100-ft lines near the Alamo Canal. Wastewater flow from the facility is estimated at 2,500 gallons per day. This system was installed in 1991 and replaced an earlier septic system located at the south edge of the site. CBP has expressed concerns regarding capacity limits and effectiveness of this system given the increased use of restroom facilities by pedestrians; the sewer capacity effectively restricts expansion or addition of restrooms at the facility (GSA 2003).

3.8.3.2 Electricity

The electrical service connection for the Andrade POE is provided by the Imperial Irrigation District overhead line along SR-186. Electricity is used for all heating and air conditioning. Natural gas is not used at the facility. During 2003, average monthly electrical use was 23,284 kWh, with a peak monthly usage of 33,960 kWh during July. In general, electrical consumption is highest in the summer months because of air conditioning.

3.9 Traffic

The region of influence for transportation is defined as the roads in the vicinity of the project area that would be used for traffic bound for the POE, either cross-border vehicles or those bound for parking lots or disembarkation points where passengers would cross into Mexico on foot. Also considered are roads used for delivery of construction equipment, construction worker access, and delivery and employee access during operation of the POE. The roads within the region of influence include I-8 in the central and western parts of Yuma and extending to the SR-186 exit in California, and various streets within Yuma that would serve as access to a new POE under Alternative 5 (Figure 3.9-1).

The major transportation route in the Yuma area is I-8. Near Yuma, annual average traffic volumes on I-8 range from 11,100 vehicles per day between Foothills Boulevard and Dome Valley Road to 23,900 vehicles per day between Arizona 280/Avenue 3E and Araby Road (Table 3.9-1). Because of the high number of winter visitors in the area, seasonal variations in traffic volume of up to 125 percent have been noted in some portions of Yuma, with peak traffic in the months of January through March (Yuma Metropolitan Planning Organization 2000).

From 1993 to 2000, summer traffic increased by 15 percent and winter traffic increased by 16 percent (Yuma Metropolitan Planning Organization 2000).

The sole access for vehicles to reach the Andrade POE is via SR-186, a 2.1-mile-long, two-lane road. Traffic counts conducted in 2003 record an annual average of approximately 7,600 vehicles per day using this road (each direction), nearly all bound for or returning from Mexico or the Quechan parking lot. The monthly peak traffic was 11,400 vehicles per day. The hourly peak was 1,050 vehicles (Caltrans 2004a). A transportation concept report prepared by Caltrans plans for an expansion of SR-186 to four lanes by the year 2020 to accommodate projected increases in traffic commensurate with population increases in Imperial and Yuma counties, and new economic enterprises of the Quechan and Cocopah Indian tribes.

The vast majority of vehicles crossing the border at the Andrade POE are privately-owned (Table 3.9-2). Vehicles traveling along SR-186 that do not cross the border are generally POVs headed for the Quechan parking lot or improvised parking spots along the southern part of SR-186.

Pedestrians then cross the border on foot. During peak times, especially in the winter months, southbound vehicle traffic will back up along SR-186, occasionally as far as I-8. These backups are usually the combined result of delays in vehicles finding parking spaces for pedestrians crossing the border on foot, and from inspections of vehicles crossing the border. The Department of Homeland Security does not maintain archival data on vehicle wait times for inspections.



Source: Yuma Metropolitan Planning Organization 2000

Figure 3.9-1. Current and Potential Access Roads to the Andrade Port of Entry with Annual Average Daily Traffic Volumes at Selected Locations

Under Alternative 5, nearly all commercial vehicles bound for or returning from Mexico, as well as many POVs, would be routed onto roads within or near Yuma. Various routes could be used, depending on trip origin and destination. Figure 3.9-1 shows major roads in the Yuma area that would be used to access a POE under Alternative 5, and provides annual average traffic volumes at selected locations.

Table 3.9-1. Annual Average Daily Traffic Volumes on Interstate 8 near Yuma, Arizona, 2003

County	From	To	Annual Average Daily Traffic
Imperial	Sidewinder Road	CA 186 south Algodones Rd.	13,200 ¹
Imperial	CA 186 south Algodones Rd.	Winterhaven Drive	17,000 ¹
Imperial	Winterhaven Drive	4th Avenue	16,800 ¹
Imperial	4th Avenue	AZ state line	14,800 ¹
Yuma	CA state line	Exit 1/Giss Parkway	21,700 ²
Yuma	Exit 1/Giss Parkway	Exit 2/U.S. 95	18,700 ²
Yuma	Exit 2/U.S. 95	Exit 3/Arizona 280/Ave. 3E	17,700 ²
Yuma	Exit 3/Arizona 280/Ave. 3E	Exit 7/Araby Road	23,900 ²
Yuma	Exit 7/Araby Road	Exit 9/BL 8/East Yuma	22,000 ²
Yuma	Exit 9/Business Loop I-8/East Yuma	Exit 12/Fortuna Road	20,600 ²
Yuma	Exit 12/Fortuna Road	Exit 14/Foothills Boulevard	16,100 ²
Yuma	Exit 14/Foothills Boulevard	Exit 21/Dome Valley Road	11,100 ²

Sources: ¹ Caltrans 2004b, ² Arizona Department of Transportation 2004

Table 3.9-2. Vehicle and Pedestrian Traffic Crossing Border at the Andrade Port of Entry, 2000-2003

Traffic Type	2000	2001	2002	2003
Trucks	1,517	1,767	2,075	2,486
Buses	87	81	90	63
POVs	606,863	603,027	723,530	764,534
Pedestrians	1,762,700	1,779,392	1,703,862	1,853,470

Source: Office of Management Reporting Data Warehouse 2004
POV—privately-owned vehicle

3.10 Air Quality

This section describes the affected environment relative to air resources. The primary factors that determine the air quality of a region are the location of air pollution sources, the type and magnitude of pollutant emission, and the local meteorological conditions.

3.10.1 Region of Influence

Within the air quality region of influence assumed for this project (a circle with a radius of approximately 10 miles centered on the project area), the air quality is considered to be good to excellent, with a visual range (based on data for Joshua Tree National Park) of nearly 155 miles.

The City of Yuma is in attainment with all of the National Ambient Air Quality Standards (NAAQS) and the Arizona Ambient Air Quality Guidelines, except for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}). Although the City of Yuma has been designated as nonattainment for PM_{10} , monitoring data have demonstrated compliance with the standard since 1990.

Clean Air Act

The *Clean Air Act* of 1970 (42 U.S.C. §7401) established ambient air quality standards to protect public health and welfare. These standards are referred to as the National Ambient Air Quality Standards (NAAQS). Areas with air quality cleaner than these standards are referred to as attainment areas. Areas with air quality not meeting the NAAQS are referred to as nonattainment areas. Areas where the air quality is not clearly defined as either attainment or nonattainment are designated unclassified. In 1977, the *Clean Air Act* was amended, and provisions intended to prevent deterioration of air quality in relatively pristine areas of the country were established. These provisions, referred to as the Prevention of Significant Deterioration rule, established Class I and Class II areas. This regulation establishes stringent increments to limit the deterioration of air quality. The increments are more stringent in Class I areas.

In 1990, additional amendments to the *Clean Air Act* set forth additional emphasis on the protection of visibility in Class I areas, and encouraged the EPA to establish new standards for ozone and particulate matter with an aerodynamic diameter smaller than 2.5 microns or $PM_{2.5}$. At this time new standards for ozone and $PM_{2.5}$ are not in effect, and are therefore not addressed in this analysis.

The nearest air monitoring site for California is in Calexico, more than 30 miles west of Andrade. All of Imperial County is classified within the Salton Sea air basin. As of 2004, the Salton Sea air basin has been designated as an attainment area by the U.S. Environmental Protection Agency (EPA).

Existing emission sources also affect the air quality in the vicinity of the project. These sources include the emissions from traffic on I-8, open burning and other agricultural operations, and the air pollution that is carried into the area from other regions, including Mexico. Projects in the region affecting the air quality in the vicinity of the project include the Arizona Public Service Yucca Power Plant and the Yuma Cogeneration Associates plant. Both facilities are located on the west side of Yuma.

3.10.2 Prevention of Significant Deterioration Classification

Congress established the Prevention of Significant Deterioration rules to prevent significant deterioration of existing air quality. Congress established Class I areas for parks, national

monuments (affording them special protection), and tribal lands, and classified the remainder of the country as Class II.

The Joshua Tree National Park is the nearest Prevention of Significant Deterioration Class I area and is located approximately 90 miles northwest of the Andrade POE. None of the tribal reservations in the region of influence for this project have applied for designation as a Class I area.

3.10.3 Climate and Meteorology

Yuma is one of the warmest and sunniest cities in the U.S. It has a classic low-desert climate with extremely low relative humidity and very high summer temperatures. Average summer highs exceed 100°F for 4 months; winter average maximum temperatures range from 60°F to 80°F. Yuma receives less than 4 inches of precipitation annually. This often arrives in several strong showers. Although very rare, maximum rain events have exceeded 3.5 inches in 1 day (Desert 2005). Table 3.10-1 lists the climate data for Yuma, Arizona.

Table 3.10-1. Climate Data for Yuma, Arizona

	Annual Average	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
High °F	87.9	68.7	74.4	78.9	86.3	94.2	103.3	106.6	105.3	100.5	90.3	77.4	68.5
Low °F	60.5	44.2	46.9	50.8	56.5	63.8	72.0	80.7	80.1	73.2	62.2	50.9	44.3
Avg °F	74.2	56.5	60.7	64.9	71.4	79.0	87.6	93.7	92.7	86.8	76.2	64.2	56.4
Rain (in.)	3.17	0.35	0.22	0.21	0.14	0.04	0.02	0.26	0.64	0.31	0.29	0.24	0.45

Source: Desert 2005

Note: Period of record is from 1/1948 to 7/2003

3.10.4 Global Warming (Greenhouse Gas Emissions)

The combustion of fossil fuels results in the emission of carbon dioxide to the atmosphere. Some experts in the scientific community believe that increased carbon dioxide emissions are contributing to a global temperature increase and could have an adverse effect on our environment. Traffic associated with the Andrade POE would contribute carbon dioxide to the atmosphere

3.11 Noise

Noise-sensitive areas are land use areas associated with indoor and outdoor activities that may be subject to stress or significant interference from ambient noise. These areas include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Industrial, commercial, and agricultural land uses, and undeveloped land generally are not considered sensitive to ambient noise. The region of influence relative to a noise source can be viewed as two separate areas: (1) nearby, or areas directly impacted by the noise resulting

from the construction and operation of the POE; and (2) regional, or sensitive areas in the region that may be impacted directly or indirectly by project construction and operation.

3.11.1 Fundamentals of Acoustics

In March of 1974, the EPA Office of Noise Abatement and Control published a document entitled *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA 1974). Much of the information below is adapted from this document, and from the publication *Protective Noise Levels*, which was produced to compliment the material in the above reference (EPA 1979).

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations, which travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by a number of variables including frequency and intensity. When the source stops vibrating, the sound waves are no longer created, and the sound ceases. The ear is extremely sensitive to these pressure fluctuations. Sound is generally characterized by a number of variables including amplitude (perceived as loudness) and frequency (perceived as pitch).

3.11.1.1 Amplitude

Sound pressure is the amplitude or measure of the difference between atmospheric pressure (with no sound present) and the total pressure (with sound present). Although there are other measures of sound amplitude, sound pressure is the fundamental measure and the basic ingredient of the various measurement descriptors.

The unit of sound pressure is the decibel (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above approximately 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is approximately 3 dB. An increase, or decrease, in sound level of about 10 dB is usually perceived by the average person as a doubling, or halving, of the sound's loudness, and this relation holds true for loud sounds or for quieter sounds.

3.11.1.2 Frequency

Frequency describes the sound's pitch and is the rate, or number of times per second, that a sound source vibrates. The frequency is typically measured as cycles per second, or Hertz (Hz). Hertz is the number of times each second that the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. A particular tone that makes the drum skin vibrate 100 times per second generates a sound pressure wave that is oscillating at 100 Hz. The human ear has a wide range of response and most humans can identify sounds with frequencies from about 16 Hz to 20,000 Hz.

3.11.2 Environmental Noise

Sound from a tuning fork (a pure tone) contains a single frequency. In contrast, most sounds one hears in the environment do not consist of a single frequency, but rather a broad band of frequencies differing in sound level. People hear sounds most readily when the predominant sound energy occurs at frequencies between 1,000 and 6,000 Hz. Sounds at frequencies above 10,000 Hz (such as high-pitched hissing) are much more difficult to hear, as are sounds at frequencies below about 100 Hz (such as a low rumble). To measure sound on a scale that approximates the way it is heard by people, more weight must be given to the frequencies that people hear more easily. This is called “A” weighting, and the resulting decibel level is called the A-weighted sound level (dBA). Typical ranges of common sounds are presented in Figure 3.11-1.

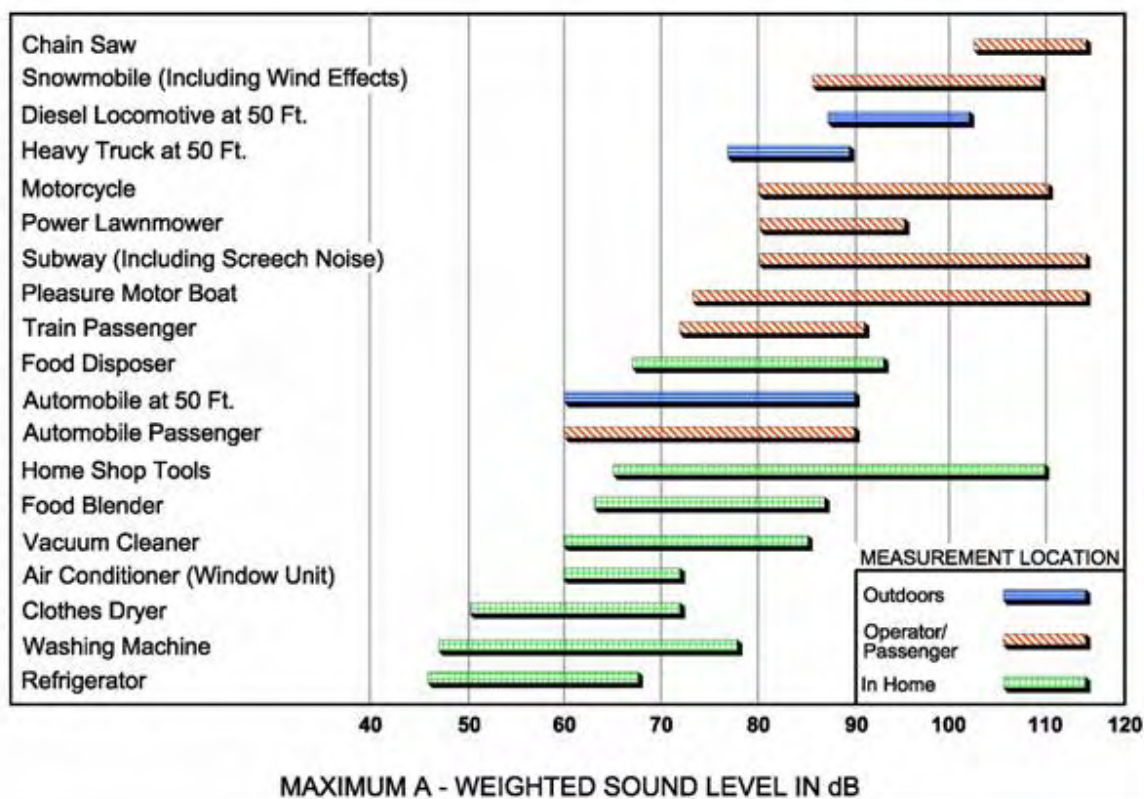
There is a difference in sudden or startling sound and continuous levels of sound. This temporal nature of sound may be described in terms of its pattern over time and change in sound pressure level. To describe the time varying characteristics of environmental noise, the statistical noise descriptors L_{10} , L_{50} , and L_{90} are commonly used. They are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the stated time. Sound levels associated with the L_{10} typically describe transient or short-term events, while levels associated with the L_{90} describe the steady-state (or most relevant) noise conditions.

Most environmental noise includes a conglomeration of noise from distant sources that creates a relatively steady background noise in which no particular source is identifiable. To account for this, a single descriptor called the equivalent sound level (L_{eq}) is used. L_{eq} is the energy-mean A-weighted sound level during a measured time interval. It is the “equivalent” constant sound level that would have to be produced by a given source to equal the fluctuating level that was measured. In addition to the L_{eq} , it is often desirable to know the acoustic range of the noise that occurred during the same time. This is accomplished through the L_{max} and L_{min} indicators. These represent the root-mean-square maximum and minimum noise levels which occurred during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

The major virtue of the equivalent sound level is that it correlates reasonably well with the effects of noise on people, even for wide variations in environmental sound levels and time patterns. It is used when only the durations and levels of sound, and not their times of occurrence (day or night), are relevant.

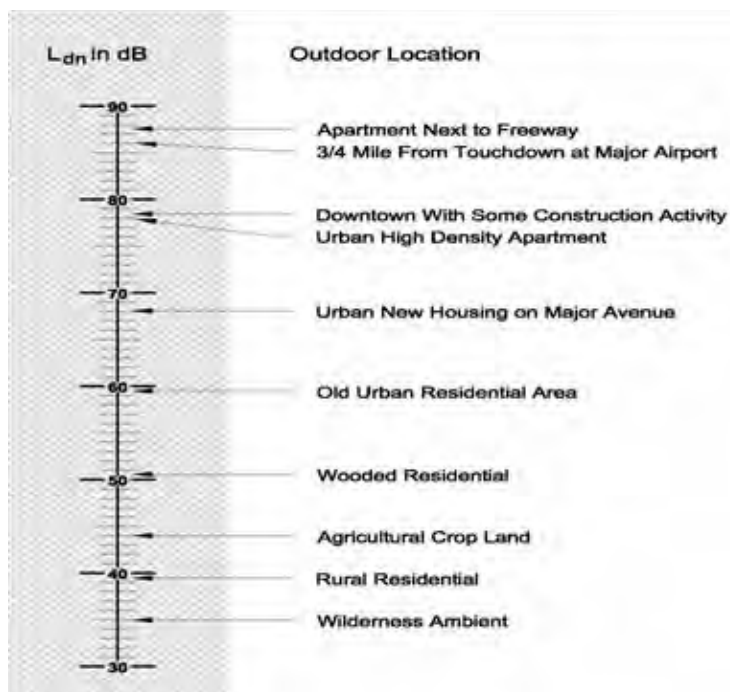
The day-night average noise level (L_{dn}) is defined as the A-weighted average sound level for a 24-hour day. It is calculated by adding a 10-dB “penalty” to sound levels in the night (10 p.m. to 7 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. Sound levels typical of outdoor areas are provided in Figure 3.11-2 using the L_{dn} .

In residential areas of the U.S., major contributions to outdoor noise come from transportation, industrial, construction, human, and animal sources. Inside homes, appliances, radio, and television, as well as people and animals, are predominant noise sources. On the job, workplace equipment can create moderate to extremely high levels of noise. The daily noise exposure of people depends on how much time they spend in different outdoor and indoor locations and on the noise environments in these places.



Source: EPA 1979.

Figure 3.11-1. Typical Ranges of Common Sounds



Source: EPA 1979.

Figure 3.11-2. Typical Sound Levels

The noise environment outside residences in the U.S. can be highly variable. Outdoor day-night sound levels in different areas vary over a range of 50 dB. Levels occur as low as L_{dn} equal to 30 to 40 dB in wilderness areas and as high as L_{dn} equal to 85 to 90 dB in urban areas.

Most Americans live in areas with a much smaller ranges of outdoor noise levels. For urban dwellers (roughly 135 million people, more than half the U.S. population), 87 percent live in areas of L_{dn} equal to 48 and higher from traffic noise alone. Rural populations enjoy average outdoor sound levels generally lower than L_{dn} equal to 50 dB.

3.11.3 Noise within the Region of Influence

Vehicular traffic along I-8, north of the project area, SR-186, and traffic within and near the City of Yuma, and agricultural equipment contribute to the existing noise levels in the area. There are no sensitive noise receptors (e.g., residences, schools) within 0.5 miles of the project area under any of the Alternatives.

The Yuma County Planning and Zoning Ordinance restricts the type of development in certain noise zones (e.g., zones where existing noise levels exceed 65 dBA, in the vicinity of an airport), but does not have any noise-related restrictions in the vicinity of the project area.

3.12 Human Health and Safety

This section discusses the regulation of worker and public health and safety, and the existing hazards at the Andrade POE. Existing conditions related to air quality, water quality, noise, geologic conditions, and traffic are discussed in their respective resource sections in this chapter.

Occupational health and safety issues are primarily the responsibility of Occupational Safety and Health Administration (OSHA). OSHA regulations applicable to the proposed construction and operation activities include 29 CFR 1910 (general industry standards) and 29 CFR 1926 (construction industry standards). As a federal facility, the Andrade POE is not subject to supplemental worker safety requirements for the state of California.

Hazards faced by workers at the Andrade POE include injuries that could be sustained from collisions with moving vehicles, lifting and moving equipment, and contact with hazardous substances during inspections.

Despite inadequacies of the present facility to segregate pedestrian and vehicle traffic streams, there have been no reported traffic-related injuries to pedestrians or workers since at least 2002 (Shell 2004). Seven reported worker injuries occurred during Fiscal Year 2004. These included one eye injury, 2 shoulder injuries, 2 back injuries, and 2 leg/knee injuries that were incurred during the performance of normal work functions.

3.13 Socioeconomics

Yuma County was one of the original four counties designated by the First Territorial Legislature. In the mid 1880s, steamboats on the Colorado River carried passengers and goods to mines, ranches, and military outposts in the area. The City of Yuma, the county seat, became a gateway to California when the Southern Pacific Railroad bridged the river at that site.

The Fort Yuma Indian Reservation, which straddles the Arizona/California state border, was created by Executive Order in 1884 from the Fort Yuma Military Reservation and additional land

to the west. The reservation is home to the Quechan Tribe. The majority of the population resides in the eastern part of the reservation, which includes the town of Winterhaven.

For the purposes of this EIS, the region of influence is the Yuma Metropolitan Statistical Area, which includes all of Yuma County, and the Fort Yuma Indian Reservation. The current Andrade POE and alternatives are located within this area, and the majority of workers at the POE would be expected to reside in this area.

3.13.1 Population Trends and Demographic Characteristics

Yuma County is one of the fastest growing Metropolitan Statistical Areas in the entire U.S. In the last decade, net migration resulted in more than 53,131 new residents to the area, an increase of almost 50 percent in 10 years. The City of Yuma is also growing very rapidly. As shown in Table 3.13-1, the population increased from 54,923 in 1990 to 77,515 in 2000, a net increase of 41 percent during the 10-year period.

Table 3.13-1. Historical Population Trends

Area	2003 Estimate ^a	2000 Census ^b	1990 Census ^c	Growth % 1990-2000	Growth % 2000-2003
Arizona	5,629,870	5,130,632	3,665,228	40.0	9.7
Yuma County	175,045	160,026	106,895	49.7	9.4
City of Yuma	83,330	77,515	54,923	41.1	7.5
Ft. Yuma Indian Reservation	NA	2,376	NA	NA	NA

NA: Not available

^a Source: Arizona Department of Economic Security 2003

^b Source: Community Profile 2004

^c Source: Census 1990

As shown in Table 3.13-2, in Yuma County the population is 68.3 percent white, with 50.5 percent of persons reporting themselves as being of Hispanic (including Latino) origin. American Indian and Alaska Native persons comprised 1.6 percent of the Yuma County population in 2000. Twenty-four percent of the county's population is foreign born, almost twice the percentage for Arizona residents as a whole. Over 45 percent of county residents speak a language other than English at home.

Yuma County and the City of Yuma have almost equal numbers of men and women in the population. The county's population is relatively young with a median age of 33.9 years. Over 16 percent of the county's population was 65 or older. Just over 65 percent of the Yuma County population over 25 years old has graduated from high school, compared with over 81 percent of all Arizona residents, indicating a less educated labor force than in other parts of the state. For the Fort Yuma Indian Reservation, only 33.4 percent of the population over 25 years old has graduated from high school.

Table 3.13-2. State, County, and Local Demographic Characteristics, 2000

Demographic Characteristic	Arizona	Yuma County	City of Yuma	Ft. Yuma Indian Reservation
Gender				
Male	49.9%	50.5%	49.8%	47.4%
Female	50.1%	49.5%	50.2%	52.6%
Age				
0-14	22.5%	24.4%	25.1%	30.6%
15-24	14.3%	14.6%	16.5%	14.0%
25-44	29.5%	25.6%	27.1%	23.3%
45-64	20.9%	18.9%	17.5%	20.8%
65 and over	13.0%	16.5%	13.9%	11.3%
Median age	34.2 years	33.9 years	31.2 years	29.9 years
Race				
White - alone	75.5%	68.3%	68.3%	27.9%
Hispanic - of any race ^a	25.3%	50.5%	45.7%	27.4%
Black - alone	3.1%	2.2%	3.2%	1.8%
Native American - alone	5.0%	1.6%	1.5%	56.8%

^a The U.S. Census Bureau complies with the Office of Management and Budget's standards for maintaining, collecting, and presenting data on race, which were revised in October 1997. They generally reflect a social definition of race recognized in this country. They do not conform to any biological, anthropological or genetic criteria. In accordance with the Office of Management and Budget definition of ethnicity, the Census Bureau provides data for the basic categories in the Office of Management and Budget standards: Hispanic or Latino and Not Hispanic or Latino. In general, the Census Bureau defines ethnicity or origin as the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the U.S. People who identify their origin as Spanish, Hispanic, or Latino may be of any race. According to the revised Office of Management and Budget standards noted above, race is considered a separate concept from Hispanic origin (ethnicity).

Source: Census 2002a

3.13.2 Housing

3.13.2.1 Yuma County

According to the 2000 Census, there were 74,140 housing units in Yuma County, almost 12 percent of which were multiple family units. Over 72 percent of the housing units are owner occupied with an average of 2.86 persons residing in each household. Because of the significant number of part-time residents (both seasonal retirees and agricultural workers), the U.S. Census Bureau estimates that 27 percent of all dwelling units in Yuma County were vacant on April 1, 2000. The median value of an owner-occupied housing unit in 2002 was \$85,100, compared to \$121,300 for the state as a whole. The median value of a new private housing unit was \$96,295 in 2000.

3.13.2.2 City of Yuma

The 2000 Census reports that there were 34,475 housing units in the City of Yuma. Of the 26,649 occupied housing units, over 63 percent were owner-occupied with 37 percent being renter-occupied. On average, 2.79 persons live in each household. The vacancy rate is between 2 percent for owner-occupied units and 12.3 percent for rentals.

3.13.2.3 Fort Yuma Indian Reservation

The 2000 Census reports that there were 962 housing units on the Fort Yuma Indian Reservation, 780 of which were occupied during April 2000. Of the 780 occupied housing units, 65.1 percent were owner-occupied with 34.9 percent being renter-occupied. On average, 3.05 persons live in each household. The vacancy rate is 1.0 percent for owner-occupied units and 14.2 percent for rentals indicating that the majority of the 182 unoccupied units are not available for rent.

3.13.3 Education

In 2000, there were 5 public high schools in Yuma County with a total enrollment of approximately 8,000 students. There are 23 public elementary schools with a total enrollment of over 20,000 students.

The Arizona Western College is a multi-campus community college granting Associate of Arts and Applied Science degrees. Northern Arizona University, the University of Arizona, and the University of Phoenix all have campuses or outreach programs in Yuma offering 4-year degree programs.

3.13.4 Community Services and Public Safety

Yuma County provides a variety of municipal type community services including public housing, public health, a roads department, and the solid waste utility. The Sheriff's Department is also a Yuma County public safety service. The City of Yuma provides the full range of community services to its residents including water, sanitary sewer, and solid waste utilities, law enforcement and fire protection, and recreation and library services.

3.13.4.1 Utilities

Major suppliers of electrical services in Yuma County are APS and the Wellton-Mohawk Irrigation and Drainage District. In Imperial County, California, electricity is supplied by the Imperial Irrigation District. Natural gas is supplied by Southwest Gas Corporation. Qwest is the major provider of telephone services (Community Profile 2003).

3.13.4.2 Healthcare

The Yuma Regional Medical Center provides a full range of specialty medical services. The 277-bed acute care facility offers 24-hour emergency service.

3.13.5 Economic Resources

Yuma County, for all the population growth it is experiencing, is still an economically challenged area, primarily because of the seasonal nature of agricultural employment. Major employment sectors include agriculture, tourism, and the military. The Arizona Department of Commerce estimates that agriculture is a billion-dollar industry when all components are

included. Principal field crops include grain, hay, and cotton. Lettuce is the principal vegetable crop, while lemons are the primary fruit crop. The county also supports an active livestock production operation, which focuses on selling cattle on feed (University of Arizona 2001).

Tourism is a major and growing economic sector in Yuma County as well as the rest of Arizona. Winter visitors and international shoppers constitute the major travelers to the area. The Yuma County Chamber of Commerce estimates that shoppers from Mexico contribute approximately \$160 million annually to Yuma County (Commerce 2005).

The military also contributes substantially to the local economy. The U.S. Marine Corps Air Station in Yuma and the U.S. Army Yuma Proving Grounds contribute directly to the economy via wages paid and goods and services purchased. In addition, many retired Navy and Marine Corps personnel live within a 40-mile radius of Yuma. Their retirement income exceeds \$29 million per year (The Maguire Company 2002).

The State of Arizona has designated Yuma County as an Enterprise Zone to provide for business development incentives such as state income and property tax credits to encourage industrial development in the area (Arizona Department of Commerce 2004).

3.13.6 Employment

Agriculture is the major employment sector in Yuma County accounting for over 35 percent of all jobs. Yuma County's top private sector employers are Dole Fresh Vegetables, Salyer American Fresh, Yuma Regional Medical Center, Gowan Company, and Shaw Industries. Major public sector employers include the City of Yuma, U.S. Army Yuma Proving Grounds, Yuma Elementary Schools, U.S. Marine Corps Air Station in Yuma, and Yuma County (Commerce 2005). Table 3.13-3 shows 2002 employment by industry in Yuma County.

Table 3.13-3. Employment by Industry, Yuma County, 2002

Industry	Average Annual Employment	Total Percent
Agriculture	22,902	35.3
Mining	0	0
Construction	2,825	4.4
Manufacturing	1,950	3.0
Transportation, Communications and Utilities	1,625	2.5
Trade	11,300	17.4
Finance, Insurance, and Real Estate	1,350	2.1
Services	10,575	16.3
Private business	52,527	81.1
Government	12,275	18.9
Total all industries	64,802	100.0

Note: Totals may not add due to nondisclosure of confidential industry data or to rounding
Source: Community Profile 2003

Government employment is especially important to Yuma County because it is a steady source of “outside” dollars coming into the county, thereby contributing to the economic base. Each outside dollar generates about \$2.00 (Nicholson 2002), whereas dollars earned from inside the community generate only \$1.00. Employment at the military bases in Yuma County provide important outside dollars.

As shown in Table 3.13-4, the unemployment rate of Yuma County is significantly higher than the state unemployment rate, hitting a high of over 24 percent in 2002. The State of Arizona unemployment rate for the year 2002 was under 5 percent. The Greater Yuma Economic Development Corporation attributes this high unemployment rate to the seasonal nature of agricultural work. Workers, many from Mexico, work for a 6-month season and then go on unemployment until the beginning of the next season. In addition, some of the older residents who come to the area each winter may apply for unemployment benefits from their previous employers for the duration of their “snowbird” months.

Table 3.13-4. Unemployment Rates in 2002

Community	Civilian Labor Force	Unemployment Rate
Arizona	2,419,619	4.7%
Yuma County	64,487	24.4%
City of Yuma	34,225	17.0%

Sources: Community Profile 2003 and 2004

3.13.7 Income

Personal income is defined as all income received by individuals from all sources including income from work (labor income or earnings), income from savings and investments (investment income), and income from outside sources such as Social Security or Medicare (transfer payment income).

The agricultural sector in Yuma County, although employing the greatest number of workers in 2000, paid the lowest wage in the county at \$6.49 per hour, while the Installation, Maintenance & Repair sector paid the highest average annual wage of \$14.05 per hour. Table 3.13-5 shows the average wages by occupation.

Per capita income is calculated by dividing all personal income received by all permanent county residents by the total county population. Personal income for Yuma County was \$2.762 billion dollars in the year 2001. Per capita income for the county was \$16,839 in 2001, while the State of Arizona per capita income was \$25,878 (U.S. Bureau of Economic Analysis [BEA] 2003). For 1999, the per capita income for the Fort Yuma Indian Reservation was \$8,402 (Census 2002b).

Poverty levels indicate what percentage of the population has income below what is necessary for basic necessities (i.e., adequate housing, food, transportation, energy, and health care). The 2000 Census reports that 15.5 percent of Yuma County families and 19.2 percent of individuals were classified as living in poverty, based on the national poverty threshold. The poverty threshold varies depending on a set of factors such as number of parents and children within a family, and age of individuals. Table 3.13-6 shows the poverty level in the region of influence for the year 1999.

Table 3.13-5. Employment by Occupation, Average Wages

Occupation	Employment	Average Hourly Wages ^a
Farming, Fishing & Forestry	8,900	\$ 6.49
Office & Administration	6,150	\$10.28
Food Preparation & Serving	4,550	\$ 6.50
Transportation & Material Moving	4,160	\$ 8.09
Construction & Extraction	2,730	\$11.59
Education, Training & Library	2,680	\$12.37
Installation, Maintenance & Repair	2,070	\$14.05

^a Results from October 1999 through August 2000

Source: Community Profile 2004

Table 3.13-6. Poverty Level in the Region of Influence, 1999

Area	Percent of Families Below the Poverty Level	Percent of Individuals Below the Poverty Level
City of Yuma	12.1	14.7
Yuma County	15.5	19.2
Fort Yuma Indian Reservation	30.5	34.1

Source: Census 2002b

3.13.8 Government and Public Finance

The State of Arizona relies on income, property, and sales taxes to meet expenditures. Personal income taxes are patterned after the Federal code and are collected via withholding for state payroll taxes. Effective January 1, 2002, the corporate income tax is 6.968 percent or \$50, whichever is greater.

The two primary sources of local government revenues are intergovernmental transfers (i.e., funds passed through from Federal and state governments such as grants-in-aid and payments in lieu of taxes for federally owned land) and local taxes and assessments. The property tax is generally the most important local tax, providing the money necessary to fund community services, and is constrained in Yuma County by the amount of land being taxed. Only 10.5 percent of the land in Yuma County is privately held and subject to property tax. The State of Arizona controls 7.7 percent of the land, while BLM manages 14.8 percent of the land. Other public entities, primarily the military, control 66.8 percent of the land (University of Arizona 2004). Payments in lieu of taxes is a program administered by BLM to offset the loss of tax revenues to communities because of tax-exempt Federal land within their jurisdictions (BLM 2001). In 2002, BLM sent \$1,585,382 to Yuma County for 1,509,156 acres of tax-exempt land managed by the BLM, Bureau of Reclamation, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service (BLM 2002).

As shown in Table 3.13-7, property tax revenues have almost doubled in the past 12 years, due to annual reappraisals of property rather than increases in the property tax rate, which has remained relatively stable during the same timeframe.

Table 3.13-7. Net Assessed Valuations

Area	1990	2000	2002
Yuma County ^a	\$383,123,731	\$552,869,545	\$615,920,229
City of Yuma ^b	\$187,552,327	\$256,612,102	\$305,708,909

Note: Property tax in Arizona is based on assessed valuation which is 25% of market value for commercial property and 10% of market value for residential property.

^a Source: Yuma County 2002

^b Source: Community Profile 2003

Local governments use sales taxes as well to fund community services and programs.

Table 3.13-8 lists the sales tax by industry sector.

Table 3.13-8. Sales Tax by Industry Sector

Area	Retail Goods	Restaurant Services	Lodging
Yuma County	7.1%	6.0%	6.6%
City of Yuma	8.8%	10.8%	10.3%

Source: Yuma County 2003

3.14 Environmental Justice

Environmental justice has been defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (EPA 2005). Concern that minority and low-income populations might be bearing a disproportionate share of adverse health and environmental impacts led President Clinton to issue an Executive Order in 1994 to address these issues. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs Federal agencies to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Order makes clear that its provisions apply fully to programs involving Native Americans. Native American issues are also addressed within Section 3.6. When conducting NEPA evaluations, the GSA incorporates environmental justice considerations into both its technical analyses and its public involvement program in accordance with EPA guidelines and the CEQ regulations (CEQ 1997).

This section examines the racial/ethnic and income characteristics of geographic areas (the Fort Yuma Indian Reservation in California and census tract 110 in Arizona) in which the POE would be constructed to determine if they qualify as minority and/or low-income areas. In addition, a census tract (4.02) was included in the western portion of Yuma, extending north and south of West 8th Street, that would likely experience an increase of traffic under Alternative 5. These geographic areas were targeted because they capture any potential impacts to the major resource areas/disciplines of the project including geology and soils, water, air quality, biological, cultural, land use and recreation, traffic, visual, noise, health and safety, and socioeconomics during both the construction and operation phases of the project.

To meet the project purpose and need, the POE would need to be located somewhere within the area encompassed by the alternatives. Therefore, the environmental justice analysis focuses on

this area and the project region of influence, specifically Yuma County, the areas in and west of the City of Yuma, and the Fort Yuma Indian Reservation. Due to the large Hispanic population (which, for purposes of this report, includes Latinos) in the southwestern portion of Arizona, Yuma County was chosen as the geographic area of comparison for determining minority populations in this analysis. Using the entire State of Arizona or California for comparison would artificially inflate the minority populations in the targeted census tracts.

3.14.1 Minority Populations

For the purpose of this EIS, minority refers to people who classified themselves as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of any race or origin, or other non-White races (CEQ 1997) in the 2000 Census. Because the Hispanic population can be either white or non-white, it is not possible to calculate minority population by adding racial minorities to the Hispanic population (an ethnic classification). Therefore, this EIS includes as minority all racial and ethnic groups other than non-Hispanic whites.

Demographic information from the U.S. Census Bureau was used to identify minority populations in the areas occupied or influenced by the project, and also within the region of influence (Yuma County and the Fort Yuma Indian Reservation). Information on locations and numbers of minority populations was obtained from the 2000 Census. Census data are reported on the level of census tracts, a geographical area that varies with size depending largely on population density (low-population density census tracts generally cover larger geographical areas), or, in the case of the Fort Yuma Indian Reservation, the reservation itself.

As shown in Table 3.14-1, for Yuma County, the total minority population is 55.7 percent. The 2000 Census data on minority groups for census tract 4.02 and the Fort Yuma Indian Reservation show that minority populations are significantly greater than Yuma County as a whole.

3.14.2 Low-Income Populations

Environmental justice guidance defines low-income using statistical poverty thresholds used by the U.S. Census Bureau. Information on low-income populations was developed from 1999 incomes reported in the 2000 Census. In 1999, the poverty-weighted average threshold for an individual was \$8,501 (Census 2002c). As shown in Table 3.14-2, 19.2 percent of individuals are below the poverty level in Yuma County.

Both of the census tracts and the Fort Yuma Indian Reservation meet the criteria for identification as low-income populations. This is particularly true of Census Tract 4.02 (29.1 percent) and the Fort Yuma Indian Reservation (34.1 percent).

Table 3.14-1. Census 2000 Racial and Ethnic Characteristics

Race	Yuma County	Census Tract 4.02	Census Tract 110	Fort Yuma Indian Reservation
Total Population, 2000	160,026	3,563	2,269	2,376
Race				
White - alone	68.3%	47.6%	69.6%	27.4%
Black or African American - alone	2.2%	1.9%	1.1%	1.8%
American Indian or Alaska Native -alone	1.6%	2.0%	4.1%	56.8%
Asian - alone	0.9%	0.3%	0.1%	0.0%
Native Hawaiian or Other Pacific Islander - alone	0.1%	0.1%	0.0%	0.0%
Some other race alone	23.6%	45.5%	21.5%	8.2%
Two or more races	3.2%	2.7%	3.6%	5.8%
Aggregate of non-white races	31.7%	52.4%	30.4%	72.6%
Ethnicity				
Hispanic – of any race ^a	50.5%	82.5%	48.3%	27.9%
Total Minority ^b	55.7%	85.8%	53.2%	83.2%

^a The Census Bureau complies with the Office of Management and Budget's standards for maintaining, collecting, and presenting data on race, which were revised in October 1997. They generally reflect a social definition of race recognized in this country. They do not conform to any biological, anthropological or genetic criteria. In accordance with the Office of Management and Budget definition of ethnicity, the Census Bureau provides data for the basic categories in the Office of Management and Budget standards: Hispanic or Latino and Not Hispanic or Latino. In general, the Census Bureau defines ethnicity or origin as the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the U.S. People who identify their origin as Spanish, Hispanic, or Latino may be of any race. According to the revised Office of Management and Budget standards noted above, race is considered a separate concept from Hispanic origin (ethnicity).

^b Percentage of population other than white (alone), non-Hispanic

Sources: Census 2002da, Census 2002b

Table 3.14-2. Percent of Individuals Below Poverty Level

	Yuma County	Census Tract 4.02	Census Tract 110	Fort Yuma Indian Reservation
Percent of individuals below poverty level	19.2%	29.1%	20.1%	34.1%

Source: Census 2003c

3.14.3 Migrant Workers and Transient Populations

Agriculture is the major employment sector in Yuma County, accounting for over 35 percent of all jobs. Many of these jobs are seasonal, using migrant workers, many from Mexico, to harvest crops. While actual numbers of migrant workers are difficult to measure because this population is transient in nature, the Arizona Department of Health Services estimates the number of migrant farm workers residing in Yuma County for at least part of the year at 15,000 (Arizona

Department of Health Systems 2005). For the most part, migrant farm workers residing in Yuma County occupy rented trailers or apartments in or near Yuma. The majority of this population would be expected to work in the agricultural areas of the Yuma Valley, east and south of the project area. During peak harvest times, many, if not a majority of, migrant farm workers travel daily to work from Mexico. Up to 30,000 workers per day cross the border at San Luis, south of Yuma (Shipp 2004). Workers then board farmer-provided buses or carpool to worksites. For areas more distant from the ports-of-entry, such as the eastern part of Yuma County, farmers are more likely to provide housing for the migrant workers (Shipp 2004).

During the winter, the Yuma area is a popular destination for transient populations of retirees, commonly referred to as “snowbirds.” For the year 2000, the number of snowbirds in Yuma County was estimated at 29,916 (Arizona Department of Health Services 2004). Some of these snowbirds maintain residences in the county, while most arrive in motor homes and other recreational vehicles which are scattered at recreational vehicle parks throughout the area. Anecdotal evidence suggests that these transient populations are largely white, non-Hispanic, and above the poverty level. Therefore, this transient population would not require analysis under Environmental Justice.

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4 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential environmental effects or impacts of the project, consisting of construction and operation of the Andrade POE and associated structures. CEQ regulations require that an EIS contain a description of the environmental effects (both positive and negative) of the alternatives. CEQ regulations (40 CFR 1508) distinguish between direct and indirect effects. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are reasonably foreseeable effects caused by the action that occur later in time or farther in distance. Both direct and indirect effects are addressed in this chapter.

CEQ regulations also require that an EIS contain a description of the cumulative impacts (40 CFR 1508) of the proposed alternatives. CEQ regulations define cumulative impacts as those that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts are addressed in Section 4.14 of this chapter.

This chapter presents information on the potential environmental effects on geology and soils, water resources, land use, biological resources, cultural resources, visual resources, infrastructure, traffic, air quality, noise, human health and safety, socioeconomics, and minority and low-income populations. Each section contains a subheading for the impact analysis of each alternative. Where the assessment of impacts for a subset of alternatives is identical, it appears under a single heading (e.g., Alternatives 1 through 4). If there is no Alternative subheading, then the analysis covers all five action alternatives.

4.1 Geology and Soils

4.1.1 Geology

4.1.1.1 Methodology and Significance Criteria

The geology resource impact analysis consists of an evaluation of the effects generated by the project on specific geologic resources. This section analyzes potential effects to geologic formation features and access to mineral and energy resources, as a result of construction of facilities associated with the project. The principal measure of the effect on the geologic resource is the presence of geological features that would be impacted by construction activities.

While not impacted by the project, geological hazards could damage components of the project if geological hazards are not addressed during the project design. Geological hazards include vibratory ground motion induced by seismic activity, local subsidence or sinkholes, and mass movement or ground shifting by large-scale geological conditions such as earthquakes.

To determine if an action could cause a significant impact, both the context of the action and the intensity of the impact were considered. For the project, the context is the locally affected area and significance depends on the geologic effects in the local area. The intensity of the impact is primarily considered in terms of any unique geologic formation or resource characteristics of the resources in the area and the degree to which the project may adversely affect such unique characteristics.

For geologic resources, permanent denial of access to mineral resources would be a significant impact. Temporary denial of access or changes of access to mineral resources are not considered significant impacts. Project design needs to account for potential geologic hazards that could be encountered in the Yuma area, including sinkholes and subsidence, earthquakes, and seismic activity. These geologic hazards would be potentially significant without proper project design.

4.1.1.2 Assessment of Impacts

There are no unique geological features at any of the proposed construction sites covered by the alternatives. The construction of the facility would not result in the disturbance of any unique geological features. The operation of the Andrade POE at any of the alternative sites would have no impacts to the geological features of the area.

Sand and gravel are the only known mineral resources near the site. However, no sand or gravel mining occurs on or near the site. No impact to sand and gravel availability would be expected from construction of the facility. Sand and gravel would be utilized for construction of the proposed facility for concrete mixtures. Existing and private borrow areas for sand and gravel in the Yuma area would be used with sand and gravel trucked to the construction site. These private borrow areas are located to the east of the construction site near Highway 95 in Arizona. No gold or silver mining resources are expected to be encountered in the site. There would be no impact to mineral resources from the construction or operation of the proposed Andrade POE.

Under Alternatives 1 through 4, there would be slopes near the facility and associated structures bordering the Alamo Canal and Colorado River that could be subject to failure. Because of the low relief of the area around the Alternative 5 facility site, the potential for slope failure would be negligible. The seismic risk in the area is moderate and there have been earthquakes close enough to the site to cause ground shaking. The soils in the valley are susceptible to liquefaction. The alluvial deposits at the Alternative sites should prove relatively stable during a moderate seismic event in association with facility design. Subsidence is not considered a concern at any of the sites.

The proposed facility design would take local seismic risk into consideration to avoid/mitigate potential damage to project components. The regional building codes for the Yuma area include measures to mitigate seismic risk. These measures include design specifications for foundations, use of steel reinforcement, and bracing for equipment. Under any of the Alternatives, the project would not impact geologic hazards, but known geologic hazards would influence the design and construction of the facility. No additional mitigation measures are needed related to geologic features at any of the Alternative sites.

4.1.2 Soils

4.1.2.1 Methodology and Significance Criteria

The soil resource impact analysis consists of an evaluation of the effects generated by the project on soil resources. The principal measure of the effect on the soil resource is the amount and location of soils disturbed during construction and operation activities of the project.

The soil resource impact analysis of the project involves the evaluation of potential effects to specific soil attributes such as increasing the potential loss of topsoil due to erosion, disturbance of farmlands, removal of topsoil, compaction and/or mixing of soils, erosion and increased

sedimentation, and disturbance of soil structures. Soil resource effects would be on small, discrete areas of land.

To determine if an action could cause a significant impact, both the context of the action and the intensity of the impact were considered. For the project, the context is the locally affected area and significance depends on the effects in the local area. The intensity of the impact is primarily considered in terms of any unique characteristics of the resources in the area and the degree to which the project may adversely affect such unique characteristics.

Permanent disturbance of prime and unique farmlands would be considered significant. Temporary disturbance of prime and unique farmlands is not considered significant. Unmitigated soil erosion and subsequent loss, compaction and/or mixing of soils would be considered significant.

4.1.2.2 Assessment of Impacts

4.1.2.2.1 Alternatives 1 and 2

Under Alternatives 1 and 2, construction of the project would result in the disturbance of approximately 4 acres of undeveloped land along the east side of SR-186 to the northeast of the current POE, and on the southwest corner of the peninsula. Disturbance includes areas that would be part of the completed facility as well as equipment staging areas used only during construction. Almost all of the site would be disturbed during construction that would include: grading; pouring of concrete for building foundations, inspection facilities, and walkways; and asphalt paving of parking areas and driveways. Soil disturbance during the construction of the project has the potential to result in erosion, increased sedimentation into the Alamo Canal, compaction, and mixing. Heavy equipment such as brush-hogs, bulldozers, and excavators would be used during project construction activities. Since there are slopes and surface water features in the area, soil erosion impacts could occur during rain events.

The project would require mitigation measures to lessen the impacts associated with soil disturbance of the site. The EPA's National Pollutant Discharge Elimination System (NPDES) program regulates stormwater runoff from construction sites. The NPDES Construction General Permit would apply to runoff control after preparation of a Storm Water Pollution Prevention Plan (SWPPP) and submittal of a notice of intent to EPA prior to construction. Typical elements of the SWPPP include placement of erosion control measures such as earthen catchment basins, culverts, terracing (if needed), grading, erosion control fencing or screening, and straw bales or wattles. All disturbed areas requiring concrete pads would be completed as soon as possible to reduce potential soil erosion. In areas where clearing is needed but grading is not necessary, vegetation would be cut off at ground level leaving root systems intact. Following construction activities, erosion and sedimentation impacts to the development of the project would be low to moderate. Areas not utilized for the project within the facility site would be reclaimed and revegetated using native plants and seeds or salvaged plants. Topsoil stockpile in excavation activities would be utilized for reclamation of the project site not affected by facility siting. Impacts to soils within the project site would be low to moderate, transitory, and overall positive for long-term stabilization. No additional mitigation measures would be needed.

4.1.2.2.2 Alternatives 3 and 4

Under Alternatives 3 and 4, construction of the project would result in the disturbance of approximately 14 acres of undeveloped land along the east side of SR-186 to the northeast of the current POE, and on the southern end of the peninsula, immediately north of the Mexican border. Disturbance includes areas that would be part of the completed facility as well as equipment staging areas used only during construction. Almost all of the site would be disturbed during construction that would include: grading; pouring of concrete for building foundations, inspection facilities, and walkways; and asphalt paving of parking areas and driveways. Soil disturbance during the construction of the project has the potential to result in erosion, increased sedimentation into the Alamo Canal and Colorado River, compaction, and mixing. Heavy equipment such as brush-hogs, bulldozers, and excavators would be used during project construction activities. Since there are slopes and surface water features in the area, soil erosion impacts could occur during rain events.

The project would require mitigation measures to lessen the impacts associated with soil disturbance of the site. The EPA's NPDES program regulates stormwater runoff from construction sites. The NPDES Construction General Permit would apply to runoff control after preparation of a SWPPP and submittal of a notice of intent to EPA prior to construction. Typical elements of the SWPPP include placement of erosion control measures such as earthen catchment basins, culverts, terracing (if needed), grading, erosion control fencing or screening, and straw bales or wattles. All disturbed areas requiring concrete pads would be completed as soon as possible to reduce potential soil erosion. In areas where clearing is needed but grading is not necessary, vegetation would be cut off at ground level leaving root systems intact. Following construction activities, erosion and sedimentation impacts to the development of the project would be low to moderate. Areas not utilized for the project within the facility site would be reclaimed and revegetated using native plants and seeds or salvaged plants. Topsoil stockpile in excavation activities would be utilized for reclamation of the project site not affected by facility siting. Impacts to soils within the project site would be low to moderate, transitory, and overall positive for long-term stabilization. No additional mitigation measures would be needed.

4.1.2.2.3 Alternative 5

Under Alternative 5, a maximum of 50 acres of soil would be permanently or temporarily disturbed by construction of the proposed facility and establishment of equipment staging areas. The soils on the site of the main facility are used for agriculture, and the project site is considered prime farmland. Construction of a bridge over the Colorado River could result in the disturbance of soils in an approximately 200-ft long strip along the Colorado River as a result of construction equipment traveling the area.

A portion of the site would be disturbed during construction that would include: grading; pouring of concrete for building foundations, inspection facilities, and walkways; and asphalt paving of parking areas and driveways. Soil disturbance during the construction of the project has the potential to result in erosion west of the Colorado River levee, increasing sedimentation into the Colorado River. All soils are subject to compaction and mixing. Heavy equipment such as bulldozers, and excavators would be used during project construction activities. Since the site is essentially flat, soil erosion impacts during rain events are unlikely.

The project would require mitigation measures to lessen the impacts associated with soil disturbance of the site. The EPA's NPDES program regulates stormwater runoff from construction sites. The NPDES Construction General Permit would apply to runoff control after preparation of a SWPPP and submittal of a notice of intent to EPA prior to construction. In areas where clearing is needed but grading is not necessary, vegetation would be cut off at ground level leaving root systems intact. Following construction activities, erosion and sedimentation impacts to the development of the project would be low. Areas not utilized for the project within the facility site would be reclaimed and revegetated using native plants and seeds or salvaged plants. Topsoil stockpile in excavation activities would be utilized for reclamation of the project site not affected by facility siting. Impacts to soils within the project site would be moderate, with the loss of productivity for approximately 50 acres of prime farmland currently used for agriculture. The permanent loss of prime farmland is considered an unavoidable adverse impact. Mitigation of this impact is not possible because of functional constraints on the location of the new POE (e.g., immediately east of the Colorado River levee and across the Colorado River from Algodones).

4.1.3 No Action Alternative

Under the No Action Alternative, the project would not be built. Operation would continue at the current facility with minor upgrades. If the project is not built, there are no impacts to geologic resources identified. There would be no impact to soils; however, the purpose and need for the project would not be met.

4.2 Water Resources

4.2.1 Surface Water

4.2.1.1 Onsite Drainage

4.2.1.1.1 Methodology and Significance Criteria

Using available mapping resources, along with applicable Federal, state, and county regulations, an evaluation of the project was performed with respect to onsite drainage. Maps of the project site were compared to recent aerial photographs and the FEMA Flood Insurance Rate Map for the area, although no FEMA map has been prepared for that portion of the project area on the Fort Yuma Indian Reservation.

Impacts to onsite drainage would be considered significant if any element of the project increases the amount of stormwater runoff, or changes or redirects the stormwater runoff to cause any adverse effects to adjacent properties.

4.2.1.1.2 Assessment of Impacts

4.2.1.1.2.1 Alternatives 1 and 2

Stormwater runoff generated on the project site would drain directly to the Alamo Canal. Runoff would not be retained onsite. Impervious surface area would increase from approximately 1 acre at the current site to approximately 5 acres. No impacts would be expected from stormwater runoff at the project site. Onsite runoff design would be addressed as part of the preparation of

detailed engineering plans for the project site. At that time, NPDES permitting requirements would also be addressed.

4.2.1.1.2.2 Alternative 3

Stormwater runoff generated on the project site would drain directly to the Alamo Canal. Runoff would not be retained onsite. Impervious surface area would increase from approximately 1 acre at the current site to approximately 8 acres. No impacts would be expected from stormwater runoff at the project site. Onsite runoff design would be addressed as part of the preparation of detailed engineering plans for the project site. At that time, NPDES permitting requirements would also be addressed.

4.2.1.1.2.3 Alternative 4

Stormwater runoff generated on the project site would drain directly to the Alamo Canal. Runoff would not be retained onsite. Impervious surface area would increase from approximately 1 acre at the present site to approximately 9 acres combined at the present site and proposed new facility. No impacts would be expected from stormwater runoff at the project site. Onsite runoff design would be addressed as part of the preparation of detailed engineering plans for the project site. At that time, NPDES permitting requirements would also be addressed.

4.2.1.1.2.4 Alternative 5

Stormwater runoff generated on the project site would drain to a network of ditches within the northwest portion of the Yuma Valley. Runoff would not be retained onsite. Impervious surface area would increase from approximately 1 acre at the current site to approximately 12 acres combined at the current site and proposed new facility. No impacts would be expected from stormwater runoff at the project site. Onsite runoff design would be addressed as part of the preparation of detailed engineering plans for the project site. At that time, NPDES permitting requirements would also be addressed.

4.2.1.2 Flooding

4.2.1.2.1 Methodology and Significance Criteria

Using available mapping resources, along with applicable Federal, state, and county regulations, an evaluation of the project was performed with respect to flooding. Maps of the project site were compared to recent aerial photographs, USGS topographic maps, and FEMA Flood Insurance Rate Maps for the area, although no FEMA map has been prepared for the portion of the project area on the Fort Yuma Indian Reservation.

Impacts to flooding would be considered significant if any element of the project increases the depth or duration of flooding.

4.2.1.2.2 Assessment of Impacts

According to the FEMA 1985 Flood Insurance Study and comparison with USGS topographic maps of the area, the project sites under any of the action Alternatives do not appear to be located within the 100-year floodplain of the Colorado River. However, FEMA floodplains, published as Flood Insurance Rate Maps, are valuable primarily for evaluating flood insurance needs. Onsite engineering and plan preparation for the project site under the selected alternative

would require detailed hydraulic modeling to determine the extent of the 100-year floodplain and corresponding water surface elevations. As part of this detailed hydraulic modeling, the existing hydrologic data would be evaluated and updated. Consequently, design 100-year floodplains may not correspond to the floodplains that are currently shown on the FEMA maps. Detailed hydraulic modeling may reveal that additional portions of the project site may be subject to flooding from the 100-year flow event. Given the results of this modeling, detailed onsite engineering can address this potential flooding and design any facilities accordingly.

If the project site is found to be in the floodplain of the Colorado River, there may be minor impacts if any fill or structure is placed in the floodplain. These impacts would consist of local increases in the 100-year water surface elevation. Additional mitigation would be required if any adjacent properties are affected. Further, GSA would have to comply with Executive Order 11988 (Floodplain Management). Pursuant to Executive Order 11988, each Federal agency is required, when conducting activities in a floodplain, to take actions to reduce the risk of flood damage; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains.

4.2.1.3 Erosion

4.2.1.3.1 Methodology and Significance Criteria

Using available mapping resources, along with applicable Federal, state, and county regulations, an evaluation of the project was performed with respect to erosion. Maps of the project site were compared to recent aerial photographs for the area.

Impacts to erosion can be considered significant if any element of the project increases the severity of erosion.

4.2.1.3.2 Assessment of Impacts

Construction of the project at any of the Alternative sites would have little or no impact on erosion rates because

- The sites appear to be outside the floodplain (if project sites were in the 100-year floodplain, then local changes in flow hydraulics could result)
- Impervious surfaces and engineered drainage systems at the facility would reduce erosion potential as compared with the existing conditions
- Landscaping of non-impervious surfaces would be sloped to minimize uncontrolled runoff

The potential impacts to erosion during construction are discussed in Section 4.1.2.2.

4.2.1.4 Jurisdictional Watercourses

4.2.1.4.1 Methodology and Significance Criteria

Using mapping resources, along with applicable Federal regulations, an evaluation of the project was performed with respect to jurisdictional watercourses. Federal jurisdictional waters include both wetlands and Waters of the U.S. Maps of the proposed Alternative sites were compared to recent aerial photographs.

Impacts to jurisdictional watercourses can be considered significant if any element of the project disturbs the watercourses. Disturbed jurisdictional watercourses require mitigation by the U.S. Army Corps of Engineers.

4.2.1.4.2 Assessment of Impacts

4.2.1.4.2.1 Alternatives 1 through 4

Under Alternatives 1 through 4, no jurisdictional water courses would be disturbed as a result of construction or operation of the project. The Alamo Canal does not qualify as a jurisdictional watercourse.

4.2.1.4.2.2 Alternative 5

Under Alternative 5, construction and operation of the bridge over the Colorado River could disturb river flow. The Colorado River qualifies as a jurisdictional watercourse. This would be a significant impact. Mitigation measures would include placing bridge support pillars outside of the Colorado River floodplain.

Because the Colorado River meets the definition of a navigable waterway, a U.S. Coast Guard Bridge Permit approval would be required prior to the commencement of construction. The U.S. Coast Guard has been delegated the authority to issue permits for the construction, reconstruction or alteration of bridges spanning navigable waterways within the United States under Title 33 of the U.S.C. The Colorado River currently experiences little recreational and no commercial maritime traffic in the project area. The proposed bridge would traverse the Colorado River floodplain. The design of the bridge would be dependent on the length and height of the span and engineering factors. The exact location of the bridge would depend on factors, currently unknown regarding Alternative 5, particularly the exact location of the POE and the location of the corresponding Mexico POE. If Alternative 5 is chosen as the preferred alternative, The U.S. Coast Guard would have to approve the bridge design. No impacts to the navigability of the Colorado River would be anticipated as a result of the construction of the bridge. No impacts to recreational navigation would be anticipated.

Construction would comply with the following U.S. Army Corps of Engineers Nationwide Permits 14 and 15, listed in Table 4.2-1. Mitigation measures (prohibitions and limitations) are spelled out in these permits. Additionally, construction of the bridge would require involvement of the Arizona Department of Transportation. If Alternative 5 is chosen as the preferred alternative, a detailed study would have to be presented as part of the Final EIS and Record of Decision to outline how GSA would obtain necessary permits and comply with regulations outlined in this section.

Table 4.2-1. Summary of U.S. Army Corps of Engineers Nationwide Permits for Bridge Construction under Alternative 5

Permit and Title	Description	Thresholds
Nationwide Permit 14— Linear Transportation Projects	Activities required for the construction, expansion, modification, or improvement of linear transportation crossings (e.g., highways, railways, trails, airport runways, and taxiways) in waters of the U.S., including wetlands.	For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the U.S.; for linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the U.S.
Nationwide Permit 15— U.S. Coast Guard Approved Bridges	Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided such discharges have been authorized by the U.S. Coast Guard as part of the bridge permit.	None.

4.2.2 Groundwater

The project water supply source is groundwater from the surficial aquifer underlying the current facility. The assessment of the potential impacts to groundwater resources involves the evaluation of potential changes to the quantity and quality of the water in the area from pumpage and discharges.

4.2.2.1 Quantity

4.2.2.1.1 Methodology and Significance Criteria

To determine possible impacts to groundwater quantity, water levels and water elevations were evaluated to determine groundwater flow conditions and wells registered with Arizona Department of Water Resources were reviewed to identify possible users of groundwater in the area. These data were used to identify potentially impacted areas and users of groundwater, based on estimated possible changes in water supply from project operations.

Because groundwater depth is a function of surface elevation changes and subsurface hydraulic conditions at a given point in time, it generally can only be estimated without a network of specially-designed monitoring wells. The lack of a detailed surface elevation profile and limited available water level information for the area, imply that the depth to water can only be estimated for the project area to approximately 10 feet.

Impacts to groundwater quantity can be considered significant if the project results in a lowered water table beyond the project boundary, or to the extent that wells in the project vicinity either have to be deepened, the screened depth increased, or have pumps repositioned due to lowered groundwater elevations.

4.2.2.1.2 Assessment of Impacts

Under any of the alternatives, groundwater would be used for all domestic water functions with the exception of drinking. These functions include toilets, sinks, hoses for washdowns, and landscape irrigation. The largest use of water at the existing POE is for restrooms used by pedestrians. Water is not metered at the current facility. A vendor supplies drinking water to the current facility via truck delivery; this practice would continue under any of the Alternatives.

4.2.2.1.2.1 Alternatives 1 and 2

Under Alternatives 1 and 2, the nearest offsite well would be located next to the convenience store to the west of SR-186 and north of the Quechan parking lot. The facility constructed under these alternatives would utilize the existing water supply wells at the Andrade POE or new wells in the same area on the west side of the Alamo Canal.

Water use would increase incrementally at the facilities proposed under either of these alternatives due to an increase in the number of employees from 40 to 80, and larger landscape area. The close proximity of the Alamo Canal and Colorado River to these sites results in a shallow water table (generally less than 20 ft). High transmissivity within the Coarse Gravel Zone combined with nearby surface water bodies result in ample groundwater supply for the facility under Alternatives 1 or 2 without significant impact to nearby wells.

4.2.2.1.2.2 Alternatives 3 and 4

Under Alternatives 3 and 4, the nearest offsite well would be located next to the convenience store to the west of SR-186 and north of the Quechan parking lot. The facility constructed under these alternatives would utilize the new water supply wells on the peninsula; Alternative 4 would also continue to use existing water supply wells at the Andrade POE.

Water use would increase incrementally at the facilities proposed under any of the alternatives due to an increase in the number of employees from 40 to 80, and larger landscape area. The close proximity of the Alamo Canal and Colorado River to these sites results in a shallow water table (generally less than 20 ft). High transmissivity within the Coarse Gravel Zone combined with nearby surface water bodies result in ample groundwater supply for the facility under Alternatives 3 or 4 without significant impact to nearby wells.

4.2.2.1.2.3 Alternative 5

Under Alternative 5, the nearest offsite well to the pedestrian port would be located next to the convenience store to the west of SR-186 and north of the Quechan parking lot. The nearest offsite well to the vehicular POE would be located at the agricultural research station operated by the University of Arizona approximately 0.7 miles east of the proposed vehicle POE. The pedestrian POE would continue to use existing water supply wells. The vehicle POE would utilize new water supply wells east of the Colorado River on the facility property.

Water use would increase incrementally at the facilities proposed under any of the alternatives due to an increase in the number of employees from 40 to 100, and larger landscape area. The close proximity of the Alamo Canal and Colorado River to these sites results in a shallow water table (generally less than 20 ft in the area near the current POE, and less than 10 feet in the area of the proposed vehicle POE in Arizona). High transmissivity within the Coarse Gravel Zone

combined with nearby surface water bodies result in ample groundwater supply for the facility under Alternative 5 without significant impact to nearby wells.

4.2.2.2 Quality

4.2.2.2.1 Methodology and Significance Criteria

No discharges to groundwater are planned under normal project operations, other than that from an onsite septic system. For this reason, the evaluation of potential impacts to the groundwater quality focused on possible water quality changes due to discharges to groundwater from the septic system. To determine possible impacts, available water quality data from nearby wells were considered in evaluating general water quality for the groundwater. Water levels and water elevations were also evaluated to determine groundwater flow conditions and wells registered with the Arizona Department of Water Resources were reviewed to identify possible receptors of groundwater from the project. These data were used to identify potentially impacted areas and users of groundwater, based on estimated possible changes in water quality from project operations.

Impacts to groundwater quality can be considered significant if discharges from activities at the project would cause adverse changes in current water quality. These adverse changes would primarily involve rises in inorganic ion concentrations above relevant water quality standards or significant increases in dissolved solids content.

4.2.2.2.2 Assessment of Impacts

As with the current facility, the proposed facilities under the alternatives would require a septic system and leachfield for sewage discharge. Each alternative encompasses enough area for emplacement of a septic tanks and construction of a leachfield at a minimum of 100 ft downgradient from the water supply well. As there are no production wells between the proposed leachfields and the Colorado River, leachfield discharge would not contaminate water supply systems. No significant impacts to groundwater quality are anticipated.

4.2.3 No Action Alternative

Under the No Action Alternative, the project would not be implemented and the current environmental conditions and impacts would be similar to those discussed for the Affected Environment in Chapter 3 of this EIS. Under this alternative, the purpose and need for the project would not be met.

4.3 Land Use

4.3.1 Methodology and Significance Criteria

The methodology used for assessing land use and recreation impacts is comparative in nature. The construction and operation of the project, as well as their predicted effects, were compared against existing land use categories for the areas that could be influenced by such actions. Impacts were identified based on determinations of compatibility among land use reasonably anticipated to occur as a result of the project and existing adjacent land uses, in addition to management plans, policies, and practices. Fort Yuma Indian Reservation land is under Quechan

tribal jurisdiction. Federal land use controls in Yuma County are administered by BLM and the Bureau of Reclamation. Private land is under the jurisdiction of Yuma County.

Consistency and compatibility of future land use with Federal and non-Federal agencies plans, policies, regulations, and practices were assessed. The Fort Yuma Indian Reservation has no land-use planning document for the project area. The Tribal Council determines the compatibility of projects with land use on a case-by-case basis. Federal agency management plans and policies are found in BLM's Land Use Planning Handbook (BLM 2005) and Resource Management Plans, which include those related to resource management and public safety. Non-Federal plans and policies include the Yuma County Zoning Ordinance and the Yuma County 2010 Comprehensive Plan (Yuma County 2003b, Yuma County 2003). Significance of impacts were judged based on the violation or degree of deviation from the governing land use guidance or regulation and the ability of GSA to mitigate the deviations.

To determine if an action may cause a significant impact, both the context of the project and the intensity of the impact were considered. For actions such as those proposed in this EIS, the context is the locally affected area and significance depends on the effects in the local area. A project is considered to have significant adverse land use impact if it:

- Conflicts with adopted environmental plans and goals
- Displaces a large number of people
- Disrupts or divides the physical arrangement of an established community
- Conflicts with established recreational, educational, religious, or scientific uses
- Permanently converts prime agricultural land to nonagricultural use or permanently impairs agricultural productivity of prime agricultural land
- Conflicts with Federal, regional, state, or local land use plans, policies, and controls
- Conflicts with existing or proposed uses at the periphery of the facility or with local land use plans
- Results in nuisance impacts attributable to incompatible land uses

For the purposes of this land use and recreation analysis, construction and operations were assumed to have similar impacts.

4.3.2 Assessment of Impacts

4.3.2.1 Alternatives 1 through 4

Under Alternatives 1 through 4, the main facility and all ancillary structures would be completely contained within the Fort Yuma Indian Reservation. The land under consideration for development ranges from approximately 7 acres under Alternatives 1 and 2 to 12 acres under Alternative 4. The portion of the Fort Yuma Indian Reservation covered by the project area is occupied by the current Andrade POE, and the Quechan parking lot, a tribal enterprise dependent on the POE. The peninsula area is not used for housing, agriculture, recreation, or educational, religious, or scientific activities. Because the Fort Yuma Indian Reservation does not have a land use plan for the project area, and any action to construct the project would require the assent and cooperation of the Quechan Tribal Council to negotiate a lease agreement, any of the alternatives

assented to by the Council would not result in significant impact to land use according to the significance criteria listed above.

4.3.2.2 Alternative 5

The land under consideration for title transfer is the 50 acres of privately-owned farmland for the proposed main-facility site and approximately 2 acres of BLM-owned land along the Colorado River. Land use for other acreage in the vicinity of the project could change substantially as a result of construction of the vehicle POE from its existing agricultural use. The farmland to be acquired is currently being farmed, and it has been designated as prime farmland. Because land use under the project conflicts with local land use plans, and construction of the project would result in the permanent elimination of 50 acres of prime farmland, construction of the project under Alternative 5 would result in a significant adverse impact to land use. Mitigation of this impact is not possible because of functional constraints on the location of the new POE (e.g., immediately east of the Colorado River levee and across the Colorado River from Algodones).

The growth pattern in the local area would likely change as a result of construction and operation of the project as businesses locate in the area attempting to profit from traffic using the POE. Section 3.13, Socioeconomics, discusses the status of population growth in Yuma County and Section 4.12, Socioeconomics, evaluates impacts of the project and other elements of the project on population growth in Yuma County. The Yuma County 2010 Comprehensive Plan will be the guiding plan that would influence or dictate the appropriate land use and future growth patterns in Yuma County.

There are no Wild and Scenic Rivers, BLM areas of critical environmental concern, or national or state parks on or adjacent to the project site. The contiguous lands in close proximity to the project site have little recreational use. Therefore, there would be no impacts to recreation.

4.3.3 No Action Alternative

Under the No Action Alternative, no additional land would be acquired for the project. The current Andrade POE facility would continue operations at the present site. No conflict with land-use plans would occur. Under the No Action Alternatives, there would be no significant impact to land use; however, the purpose and need for the project would not be met.

4.4 Biological Resources

4.4.1 Vegetation

4.4.1.1 Methodology and Significance Criteria

Information used in this analysis of potential impacts from the project was obtained from field surveys, database records maintained by the AGFD Heritage Data Management System, published and unpublished technical reports, and personal communications with resource specialists.

To determine if the project may cause significant impacts, the context and intensity of the expected effects are considered. For the actions addressed in this EIS, context is the locally affected project area, with significance being assessed depending on intensity and duration of predicted effects in the project area. Intensity of predicted impacts is dependent on the

characteristics of vegetation in the region of influence and the degree to which the project may adversely affect vegetation. Impacts would be considered significant if the project were to adversely affect federally listed or proposed species, threaten viability of local populations of any species, or contribute to listing of sensitive species under the ESA (16 U.S.C. §§1531-1544). Significance also is assessed relative to the amounts of various plant communities in the region. For example, removal of portions of abundant, widespread plant communities (e.g., tamarisk) would not be significant because the project would represent a small incremental loss both locally and regionally. Significance is also based on the degree of protection plants receive under the Arizona Native Plant Law (Arizona Revised Statutes 2005). Losses of highly safeguarded plants (i.e., endangered in Arizona) would be a significant impact. Successful salvage and replanting of plants protected under the Arizona Native Plant Law would reduce impacts to levels of insignificance (Arizona Revised Statutes 2005).

4.4.1.2 Assessment of Impacts

4.4.1.2.1 Alternatives 1 and 2

Construction of the project would permanently remove approximately 4 acres of plant communities and replace them with structures and ancillary facilities. Species that would be removed include tamarisk, phragmites, saltbush, mesquite, and coyote bush. Loss of 4 acres of plant communities, nearly all of it degraded by past disturbance, would not be a significant impact because similar habitat in a natural state covers extensive areas of southeastern California and southwestern Arizona. The loss of 4 acres would be insignificant compared to the amount of remaining habitat.

Under these alternatives, GSA would prevent the introduction of invasive species by ensuring that all earthmoving and hauling equipment will be washed at the contractor's storage facility prior to entering the construction site. In addition, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.

4.4.1.2.2 Alternatives 3 and 4

Construction of the project would permanently remove approximately 14 acres of plant communities, largely tamarisk woodland, and replace them with structures and ancillary facilities. Species that would be removed include tamarisk, atriplex, mesquite, coyote bush, phragmites, willow, palo verde, and arrow weed. Loss of 14 acres of plant communities, nearly all of it degraded by past disturbance, would not be a significant impact because similar habitat in a natural state covers extensive areas of southeastern California and southwestern Arizona. The loss of 14 acres would be insignificant compared to the amount of remaining habitat.

Under these alternatives, GSA would prevent the introduction of invasive species by ensuring that all earthmoving and hauling equipment will be washed at the contractor's storage facility prior to entering the construction site. In addition, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.

4.4.1.2.3 Alternative 5

Construction of the project could temporarily disturb approximately 2 acres of plant community along the Colorado River as bridge-construction equipment would likely use the area. Less than 1 acre of plant community would be permanently lost as a direct effect of the placement of bridge support structures. The plant community consists of cottonwoods, willows, arrow weed, phragmites, tamarisk, mulefat, atriplex, and mesquite. In areas disturbed by construction activity, annual grasses and forbs would colonize soil within 1 to 2 years, but most perennial vegetation could take 10 or 20 years to establish. Riparian vegetation, mostly tamarisk, would naturally reestablish in 1 to 2 years. These impacts would be minor.

Revegetation success of disturbed sites would be enhanced by seeding the areas with weed-free mixtures comprised of native species adapted to local growing conditions. Salvage of plants protected under the Arizona Native Plant Law would reduce but not totally eliminate mortality to affected plants. An unknown number of salvaged plants would not survive replanting, which would result in a loss of plants protected under the Arizona Native Plant Law (Arizona Revised Statutes 2005).

Temporary disturbance of approximately 2 acres of this plant community, or permanent loss of less than 1 acre, much of it degraded by past activities such as levee construction, would not be a significant impact because similar habitat in a natural state covers extensive areas along the Colorado River in southwestern Arizona, and the acreage would be insignificant compared to the amount of remaining habitat.

Under this alternative, GSA would prevent the introduction of invasive species by ensuring that all earthmoving and hauling equipment will be washed at the contractor's storage facility prior to entering the construction site. In addition, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.

4.4.2 Wildlife

4.4.2.1 Methodology and Significance Criteria

Information used in this analysis of potential impacts from the project was obtained from field surveys, database records maintained by the AGFD Heritage Data Management System, published and unpublished technical reports, and personal communications with resource specialists, all of which are in the reference section.

To determine if the project may cause significant impacts, the context and intensity of the expected effects are considered. For the actions addressed in this EIS, context is the locally affected project area, with significance being assessed depending on intensity and duration of predicted effects in the project area. Intensity of predicted impacts is dependent on the characteristics of wildlife and wildlife habitat in the region of influence and the degree to which the project may adversely affect these biological resources. Impacts would be considered significant if the project were to reduce viability of local populations of wildlife, or reduce the range of occurrence of any species. Loss of birds protected under the Migratory Bird Treaty Act would be a significant impact.

4.4.2.1.1 Alternatives 1 through 5

The project would result in short-term effects (i.e., lasting during the period of construction or maintenance) on wildlife due to displacement associated with construction and maintenance of project facilities and long-term effects (i.e., lasting the life of the project or longer) from loss of habitat from permanent project facilities. Direct mortality to individual species could also result from excavations and habitat removal during construction of the project. Burrowing animals such as reptiles, small mammals, and insects would be lost if their burrows were destroyed by construction activities and they were present in the burrows. Birds could also experience increased mortality risk especially if construction were to take place during the nesting season; however, timing construction to avoid the nesting season would eliminate this impact. Eggs and nestlings would be vulnerable to mortality from removal of vegetation and from operation of construction and maintenance equipment. Abandonment of nests due to disturbance would also increase mortality to nestlings.

Wildlife such as small mammals, birds, and coyotes would also be displaced during construction from noise, vehicles, and high levels of human activity. Displaced animals can be stressed due to displacement because adjacent habitats are usually fully occupied and cannot readily accommodate increased population densities. Following construction, most displaced wildlife species would return to remaining suitable habitats.

The potential small losses of wildlife that would be killed directly from construction activities or displaced would be insignificant in a regional context. The viability of no populations would be threatened and there would be no measurable long-term effect on population numbers or distribution over a species' range of occurrence.

4.4.3 Fisheries

4.4.3.1 Methodology and Significance Criteria

Information on fisheries was obtained from the ADFG. Impacts to fish and their habitat would be significant if the project were to affect fish populations through reductions in water quality or reduced spawning success.

4.4.3.2 Assessment of Impacts

4.4.3.2.1 Alternatives 1 through 4

The project would not affect fish or habitat in the Colorado River. Sediment from construction activities would not affect water quality in the river as construction-related runoff would be controlled by berms or other structures. Small amounts of sediment from construction activities could enter the Alamo Canal, which is not a fishery. Runoff from the completed facility would drain to the Alamo Canal.

4.4.3.2.2 Alternative 5

Sediment from construction activities would not affect water quality in the river as construction-related runoff would be controlled by berms or other structures, and there is no direct discharge point to the river from the site of the main facility construction under Alternative 5. Bridge construction could result in deposition of sediment in the Colorado River. The techniques and

timing of bridge construction activities would be coordinated with the U.S. Fish and Wildlife Service and the AGFD to avoid impacts to fisheries.

4.4.4 Special-Status Species

4.4.4.1 Methodology and Significance Criteria

Special-status species include plants and animals listed as threatened, endangered, or proposed for listing under the ESA, species listed as endangered or threatened under the *California Endangered Species Act* (California Fish and Game Code §§2050-2098), or Wildlife of Special Concern in Arizona (AGFD 1996). GSA prepared a Biological Assessment for the project (GSA 2005a). The Biological Assessment addresses species listed or proposed for listing under the ESA and assesses effects of the project on listed and candidate species. Section 7 consultation has been initiated with U.S. Fish and Wildlife Service.

Information used in this analysis of potential impacts from the project was obtained from field surveys, database records maintained by the California Department of Fish and Game and the AGFD Heritage Data Management System, published and unpublished technical reports, and personal communications with resource specialists.

To determine if the project may cause significant impacts, the context and intensity of the expected effects are considered. For the actions addressed in this EIS, context is the locally affected project area, with significance being assessed depending on intensity and duration of predicted effects in the project area. Intensity of predicted impacts is dependent on the characteristics of sensitive biological resources in the region of influence (e.g., special-status species and their habitats) and the degree to which the project may adversely affect sensitive biological resources. Impacts would be considered significant if the project were to adversely affect federally listed or proposed species, reduce viability of populations of special-status species, contribute to listing of sensitive species under the ESA, or destroy occupied habitat of species listed under the ESA.

4.4.4.2 Assessment of Impacts

4.4.4.2.1 Special-Status Plants

4.4.4.2.1.1 Alternatives 1 through 4

No special-status plants were identified or are expected to occur in the region of influence. The project would not result in significant impacts to special-status plants.

4.4.4.2.1.2 Alternative 5

No special-status plants are expected to occur in the area of the main facility. Construction activities related to the bridge could disturb mesquite (*Prosopis glandulosa*), of which a variety (*Prosopis glandulosa* var. *torreyana*) is a salvage-assessed plant under the Arizona Native Plant Law. This variety of mesquite would be avoided or transplanted to avert destruction or disturbance, where feasible, although this Federal project would not be subject to the Arizona Native Plant Law.

4.4.4.2.2 Special-Status Animals

Southwestern Willow Flycatcher (Endangered). Alternatives 1 through 5 would remove between 1 and 14 acres of riparian vegetation (mostly tamarisk) near the Alamo Canal and Colorado River. This riparian habitat may be marginally suitable for willow flycatcher nesting and foraging; however, the willow flycatcher has not been observed in the vicinity of the project. Although tamarisk would be removed during construction, this species would rapidly re-establish on areas disturbed by construction. The area of tamarisk that would be removed by project construction would be insignificant as there are extensive areas of tamarisk along the Colorado River that could provide nesting and foraging habitat for the southwestern willow flycatcher.

Yuma Clapper Rail (Endangered). Construction and operation of the facility would not require removal of wetland vegetation, the Yuma clapper rail's preferred habitat; consequently, Yuma clapper rails would not be affected by construction or operation of the project.

Great Egret and Snowy Egret (Arizona Species of Concern). Under Alternative 5, Construction of the bridge across the river would likely displace egrets from the immediate vicinity of the crossing while active construction is taking place. No nesting egrets have been reported at any of the project locations, therefore it is unlikely that nesting and brood rearing would be affected. Construction and operation of the project would not require removal of wetland vegetation; consequently, the great egret and snowy egret would not be affected by construction or operation of the project.

California Black Rail (California Threatened). The California black rail has not been recorded in the project area and suitable breeding habitat (i.e., wetlands) is not present on the project site.

Western Yellow-billed Cuckoo (Candidate). Construction and operation of project would remove between 1 and 14 acres of riparian vegetation (mostly tamarisk) along the Alamo Canal and Colorado River. This is not suitable nesting or foraging habitat for the western yellow-billed cuckoo; consequently, the project would not affect this species.

Flat-tailed Horned Lizard (Arizona Species of Concern). The flat-tailed horned lizard has not been recorded in the project area and suitable habitat (i.e., packed sand or desert pavement overlain with fine blown sand) is not present on the project site.

4.4.5 No Action Alternative

If the project were not implemented, existing conditions of biological resources in the area would be maintained. Habitat would remain in its present state. Commercial and governmental activities would continue in the region of influence with no expected impacts to biological resources; however, the purpose and need for the project would not be met.

4.5 Cultural Resources

4.5.1 Methodology and Significance Criteria

Potential impacts to cultural resources were assessed for the proposed alternatives. Descriptions of activities that would occur under each alternative were used to analyze potential direct and indirect impacts to cultural resources.

4.5.1.1 Types of Impacts

The locations of cultural resources identified in the region of influence were compared to the activities under the proposed alternatives. The potential for impacts, both direct and indirect, of project activities was then assessed.

Potential direct impacts can include physical destruction resulting from surface disturbing activities, access to construction areas by large machinery, demolition activities, renovation activities, use of staging areas for storage of equipment and supplies, and future maintenance activities. These physical impacts can occur to both known resources and subsurface sites that could be discovered and disturbed during surface disturbing activities.

Indirect impacts to cultural resources are often not quantifiable. Potential indirect impacts can include physical harm resulting from unintentional damage to resources outside of approved construction zones. Other potential indirect impacts can be the introduction of visual or auditory elements out of character with a resource or disruption of the setting of a resource. These can result from introducing modern structures into an otherwise natural setting.

4.5.1.2 Significance Criteria

Potential impacts to cultural resources were assessed using the “criteria of adverse effect” (36 CFR 800.5[a][1]), as defined in the implementing regulations for the NHPA. An adverse effect occurs when an undertaking may alter the characteristics of an historic property or TCP that make it eligible to the NRHP. Therefore, the analysis of impacts using these criteria is limited to those resources determined as eligible. There are five broad categories of effect: (1) physical destruction or alteration; (2) isolation and restriction of access; (3) introduction of visible, audible, or atmospheric elements out of character with the resource; (4) neglect leading to deterioration or vandalism; and (5) transfer, sale, or lease from Federal to non-Federal control without adequate restrictions to ensure preservation. For this EIS, a significant impact is equivalent to an adverse effect.

The potential for significant impacts to ethnographic resources that are not recommended as eligible for listing on the NRHP, but are identified as important to tribes, and for impacts to TCPs, would be based on tribal concerns identified during tribal consultation. Potential impacts to religious and sacred sites would be addressed in the context of the *American Indian Religious Freedom Act* (42 U.S.C. 1996) and Executive Order 13007, which provide for Federal protection and consideration of religious practices that might be impacted under the alternatives. Potential significant impacts could include physical impacts to religious or sacred sites, loss of access to sites, and burdens on the practice of religion by traditional practitioners.

4.5.2 Assessment of Impacts

The discussions of potential impacts to cultural resources are limited to resources that have been recommended as eligible to the NRHP or have unknown eligibility, and to ethnographic resources that the Tribes have identified. Because the recommendations of NRHP-eligibility are preliminary, it is possible that the number of eligible sites could change. Currently, no potential impacts to ethnographic resources are known. If additional sites are determined eligible, mitigation measures would be applied to the sites that could be impacted by project activities, determined in consultation with interested Tribes and the California and Arizona SHPOs.

Alternatives 1 through 5 would be located in areas that already exhibit a built environment. Features include the existing Andrade facility, the border fence, the town of Algodones, SR-186, the Quechan parking lot, transmission lines, multiple irrigation and drainage facilities, railroad facilities, and the power plant and desalinization plant. As such, there would be no additional visual effect or impact to cultural resources within or outside the inventoried areas from any of these five alternatives.

Unintentional physical damage to nearby cultural resources can occur when construction activities occur outside of approved areas. Under all of the alternatives, the construction areas would be fenced during all construction activities to prevent any activities from proceeding outside of the approved construction area. Also, construction management and staff would be educated as to the requirement that all activities must take place within approved areas. These measures would prevent impacts to cultural resources outside the approved work areas.

4.5.2.1 Alternative 1

The proposed locations for both variants of Alternative 1 include one NRHP-eligible resource, the Alamo Canal. Both variants also include the Andrade POE, which is of unknown eligibility. Under both variants, a bridge would be constructed spanning the canal. However, construction and maintenance of the bridge and the rest of the POE would cause no physical changes or damage to the canal.

Demolition and renovation of portions of the existing POE would occur under both variants. If the existing Andrade facility is determined eligible for the NRHP, these activities would have an adverse effect on the property and this would be a significant impact. Mitigation of this impact to the existing facility would include detailed recording of the property and its historic context to National Park Service standards under the Historic American Buildings Survey/Historic American Engineering Records program. This would mitigate for the damage to the facility by collecting information about the property prior to construction activities taking place. Because the property would still be damaged by the construction activities, making it no longer eligible for listing on the NRHP, the significant impact, although mitigated, would remain.

4.5.2.2 Alternative 2

The proposed location for Alternative 2 includes one NRHP-eligible resource, the Alamo Canal, and one resource of unknown eligibility, the existing Andrade facility. Under this alternative, the canal would be partially filled, and a bulkhead constructed to contain the fill and support facilities that would be built on the filled area. This would result in an adverse effect or significant impact to the canal. This alternative also includes construction of a bridge spanning the canal. However, construction and maintenance of the bridge and the rest of the POE would cause no physical changes or damage to the canal. Demolition and renovation of portions of the existing POE would also occur under this alternative. If the Andrade POE is determined eligible for the NRHP, these activities would have an adverse effect on the property and this would be a significant impact.

Mitigation of the impacts to the canal and existing Andrade facility would include detailed recording of the properties and their historic contexts to National Park Service standards under the Historic American Buildings Survey/Historic American Engineering Records program. This would mitigate for the damage to the canal and the existing facility by collecting information about the properties prior to construction activities taking place. Because the properties would

still be damaged by the construction activities, making them no longer eligible for listing on the NRHP, the significant impacts, although mitigated, would remain.

4.5.2.3 Alternative 3

The proposed location of Alternative 3 includes two NRHP-eligible resources, the Alamo Canal and the Inter-California Railroad, and two resources of unknown eligibility, the existing Andrade facility and the transmission line. Under this alternative, a bridge would be constructed over the Alamo Canal. However, construction and maintenance of the bridge and the rest of the POE would cause no physical changes or damage to the canal. Thus there would be no impact to the canal.

Demolition of the existing Andrade facility would also occur under this alternative. If the existing facility is determined eligible for the NRHP, these activities would have an adverse effect on the property and this would be a significant impact.

Although the transmission line is within the alternative's project area, no portion of this property would be changed. Thus there would be no impact to this property.

The Inter-California Railroad property is partially located within the project area. The portion within the project area includes the remains of a water tank, multiple concrete footers (some in place and others obviously moved), a concrete foundation, and building and miscellaneous trash. Some of these features would be removed or otherwise physically impacted during construction under Alternative 3. These activities would have an adverse effect on the property and this would be a significant impact.

Mitigation of the impacts to the existing Andrade facility and the Inter-California Railroad would include detailed recording of the properties and their historic contexts to National Park Service standards under the Historic American Buildings Survey/Historic American Engineering Records program. This would mitigate for the damage to the existing facility and railroad by collecting information about the properties prior to construction activities taking place. Additional information would be collected through data recovery excavations at the railroad property as it is suspected that subsurface features exist within the project area. Because the properties would still be damaged by the construction activities, making them no longer eligible for listing on the NRHP, the significant impacts, although mitigated, would remain.

4.5.2.4 Alternative 4

The proposed location of Alternative 4 includes two NRHP-eligible resources, the Alamo Canal and the Inter-California Railroad, and two resources of unknown eligibility, the existing Andrade facility and the transmission line. Under this alternative, a bridge would be constructed over the Alamo Canal. However, construction and maintenance of the bridge and the rest of the POE would cause no physical changes or damage to the canal. Thus there would be no impact to the canal.

Demolition and renovation of portions of the existing Andrade facility would also occur under this alternative. If the existing facility is determined eligible for the NRHP, these activities would have an adverse effect on the property and this would be a significant impact.

Although the transmission line is within the alternative's project area, no portion of this property would be changed. Thus there would be no impact to this property.

The Inter-California Railroad property is partially located within the project area. The portion within the project area includes the remains of a water tank, multiple concrete footers (some in place and others obviously moved), a concrete foundation, and construction and miscellaneous trash. Some of these features would be removed or otherwise physically impacted during construction under Alternative 4. These activities would have an adverse effect on the property and this would be a significant impact.

Mitigation of the impacts to the existing POE and the Inter-California Railroad would include detailed recording of the properties and their historic contexts to National Park Service standards under the Historic American Buildings Survey/Historic American Engineering Records program. This would mitigate for the damage to the POE and railroad by collecting information about the properties prior to construction activities taking place. Additional information would be collected through data recovery excavations at the railroad property as it is suspected that subsurface features exist within the project area. Because the properties would still be damaged by the construction activities, making them no longer eligible for listing on the NRHP, the significant impacts, although mitigated, would remain.

4.5.2.5 Alternative 5

The proposed location of Alternative 5 has only been partially inventoried for cultural resources, due to the lack of permission by private landowners to access certain areas to conduct field survey. The locations of the access road and most of the facility site have not been inventoried. However, these portions of the alternative's project area would be located on existing farmland; thus, the likelihood that intact cultural resources are located within these areas is small. If this alternative is selected, the inventory of these areas would be conducted and consultation on the findings with the Arizona SHPO completed prior to any construction activities taking place at this location.

The area that would be spanned by the proposed bridge was inventoried, and includes three NRHP-eligible resources: the Yuma Valley Railroad, the Cooper Lateral, and the Yuma Valley Levee. None of these properties would be physically changed or damaged during construction or maintenance of the bridge or the rest of the new POE. Thus there would be no impact to these three properties.

4.5.3 No Action Alternative

Under the No Action Alternative, there would be no adverse effect on the property; however, this alternative would not meet the purpose and need for the project.

4.6 Visual Resources

4.6.1 Methodology and Significance Criteria

The visual quality of the existing landscape in the vicinity of the project is discussed in Section 3.7. The existing visual quality is based on the evaluation of the natural landscape and existing modifications for form, line, pattern, color, contrast, and texture. The sensitivity of the existing visual resources to change associated with the project depends on whether an area already contains modifications, and the degree of public concern or agency management directives for changes to the visual landscape.

In assessing the potential effects of the project, the visual features that would be associated with the project during construction and operation are evaluated. The discussion includes the physical or visual relationships that influence the visibility of the proposed landscape changes, such as whether the project would be in the background or foreground for potential viewers.

The significance of impacts to visual resources is dependent upon the existing character of the resource and the amount of change to that resource. For visual resources that are unaltered from their natural state or for resources of high public value such as rare or special landscapes, any visual changes beyond minor changes would be a significant impact. The most significant visual impacts would occur in existing high-quality landscapes that have a high sensitivity to change, such as areas of particular public concern or specially protected areas. For areas where the existing visual resources are already altered from their natural state, visual changes that substantially modify the overall visual character of an area would be a significant impact.

4.6.2 Assessment of Impacts

4.6.2.1 Alternatives 1 and 2

The project would be built on 7.5 acres that currently contains the Andrade POE and portions of the Quechan parking lot, a convenience store, and, for Alternative 2, a portion of the Alamo Canal. As described in Section 3.7, the existing scenic integrity (degree of intactness or wholeness of the natural landscape) is low, as the area is highly altered from its natural state. The project would be visible only to those traveling to or from the southern end of SR-186, which are almost exclusively people heading to or from Mexico. No other locations readily accessible by viewers are in the vicinity of the site.

The visual impact of the project would be primarily from the above-ground structures: several one-story buildings, covers over the inspection areas, and support buildings. The project would be painted using desert shades and earth tone colors to minimize contrast with the surrounding area.

The residual visual impact of construction of the project would be small and insignificant because the existing visual resources are already altered from their natural state, and the visual changes introduced would not substantially modify the overall visual character of the area. No additional visual mitigation measures are recommended.

4.6.2.2 Alternatives 3 and 4

The project would be built on 12 acres that is currently an undeveloped landscape, consisting largely of invasive tamarisk vegetation and highly disturbed by human activity. As described in Section 3.7, the existing scenic integrity (degree of intactness or wholeness of the natural landscape) is low, as the area is highly altered from its natural state. The project would be visible to those traveling to or from the southern end of SR-186, which are almost exclusively people heading to or from Mexico, and to viewers in a small area immediately east of the Colorado River (an area with no public thoroughfares). No other locations readily accessible by viewers are in the vicinity of the site.

The visual impact of the project would be primarily from the above-ground structures: several one-story buildings, covers over the inspection areas, and support buildings. The project would be painted using desert shades and earth tone colors to minimize contrast with the surrounding area.

The residual visual impact of construction of the project would be small and insignificant because the existing visual resources are already altered from their natural state, and the visual changes introduced would not substantially modify the overall visual character of the area. No additional visual mitigation measures are recommended.

4.6.2.3 Alternative 5

The main facility of the project would be built on 50 acres that is currently used for agriculture, specifically, cultivation of row-crops. The associated bridge would cross the Colorado River, an undeveloped landscape, though channeled by the large levee separating the river from the agricultural areas of the Yuma Valley. The existing scenic integrity (degree of intactness or wholeness of the natural landscape) is low, as the area is highly altered from its natural state. The project would be visible to those traveling on the portion of 8th Street west of Yuma, or the northern section of Somerton Avenue.

Two industrial facilities are located in the vicinity of the project: a multi-story desalinization plant (see Section 3.3.1.2) and an agricultural research station operated by the University of Arizona.

The visual impact of the project would be primarily from the above-ground structures: several one-story buildings, covers over the inspection areas, support buildings, and the bridge. Project structures, with the exception of the bridge, would be painted using desert shades and earth tone colors to minimize contrast with the surrounding area. The surface of the bridge structure would be unpainted concrete and/or painted structural steel.

The residual visual impact of construction of the project would be small and insignificant because the existing visual resources are already altered from their natural state, and the visual changes introduced would not substantially modify the overall visual character of the area. No additional visual mitigation measures are recommended.

4.6.3 No Action Alternative

Under the No Action Alternative, the project would not be constructed. There would be no impact to the existing visual resources in the area; however, the purpose and need for the project would not be met.

4.7 Infrastructure

4.7.1 Methodology and Significance Criteria

Impacts of the project to infrastructure were assessed by comparing the support requirements of the alternatives to current site infrastructure utility demands (water and electricity) based on projected facility square footage requirements and available capacities. Impacts would be considered significant if the project would cause the need for substantial improvements or upgrades to the existing service area or utility infrastructure or cause demand to exceed the capacity of existing public utility systems.

4.7.2 Assessment of Impacts

4.7.2.1 Alternatives 1 through 3

The primary water source for the facility would be groundwater pumped from onsite wells. Drinking water would be trucked to the facility by a commercial water supplier. The availability of groundwater and projected usage is discussed in Section 4.2.2.1. No impacts to water supply infrastructure would be anticipated.

Electricity at the facility would be supplied by the Imperial Irrigation District through an overhead line along SR-186. Summer peaks in electrical usage indicate that a least half of the electricity used at the current facility is consumed by air conditioning systems. The analysis calculated electrical use at the proposed facility by comparing gross square footage and electrical use at the currently occupied buildings at the Andrade POE with gross square footage of occupied buildings at the proposed facility. Given the current 5,830 square-foot occupied area of the current facility and the 2003 electrical use (maximum for the period of 2000 through 2003) of 279,403 kWh, yield a consumption of 47.93 kWh per square foot. Use at the 18,300 square-foot proposed facility is estimated at 877,000 kWh per year. For comparison, average household electrical use in Arizona during 2000 was 13,067 kWh. The projected electrical usage should be considered a maximum number as the newly constructed buildings would be designed for greater energy conservation than those at the existing facility. The proposed facility would use the equivalent electricity of 46 average Arizona households. This would not result in a significant impact to the electrical supply within the area, although an additional electrical supply line may be required from the nearest substation.

4.7.2.2 Alternative 4

The primary water source for the facility would be groundwater pumped from onsite wells. Drinking water would be trucked to the facility by a commercial water supplier. The availability of groundwater and projected usage is discussed in Section 4.2.2.1. No impacts to water supply infrastructure would be anticipated.

Electricity at the facility would be supplied by the Imperial Irrigation District through an overhead line along SR-186. Using the calculations described in Section 4.7.2.1, electrical use at the 18,300 square-foot proposed facility is estimated at 877,000 kWh per year. In addition, electrical use at the current facility would continue at approximately 280,000 kWh per year. The 877,000 kWh per year therefore represents a net increase in electrical use, equivalent to 67 average Arizona homes. The projected electrical usage should be considered a maximum number

as the newly constructed buildings would be designed for greater energy conservation than those at the existing facility. This would not result in a significant impact to the electrical supply within the area, although an additional electrical supply line may be required from the nearest substation.

4.7.2.3 Alternative 5

The primary water source for the facility would be groundwater pumped from onsite wells. Drinking water would be trucked to the facility by a commercial water supplier. The availability of groundwater and projected usage is discussed in Section 4.2.2.1. No impacts to water supply infrastructure would be anticipated.

Electricity at the new facility in Arizona would be supplied by APS through an overhead line along 8th Street or Somerton Avenue. Using the calculations described in Section 4.7.2.1, electrical use at the 18,300 square-foot proposed facility is estimated at 877,000 kWh per year. In addition, electrical use at the current facility would continue at approximately 280,000 kWh per year. The 877,000 kWh per year therefore represents a net increase in electrical use, equivalent to 67 average Arizona homes. The projected electrical usage should be considered a maximum number as the newly constructed buildings would be designed for greater energy conservation than those at the existing facility. This would not result in a significant impact to the electrical supply within the area, although an additional electrical supply line may be required from the nearest substation.

4.7.3 No Action Alternative

Under the No Action Alternative, water and electricity use would continue at current levels. No impacts to water or electric infrastructure would occur; however, the purpose and need for the project would not be met.

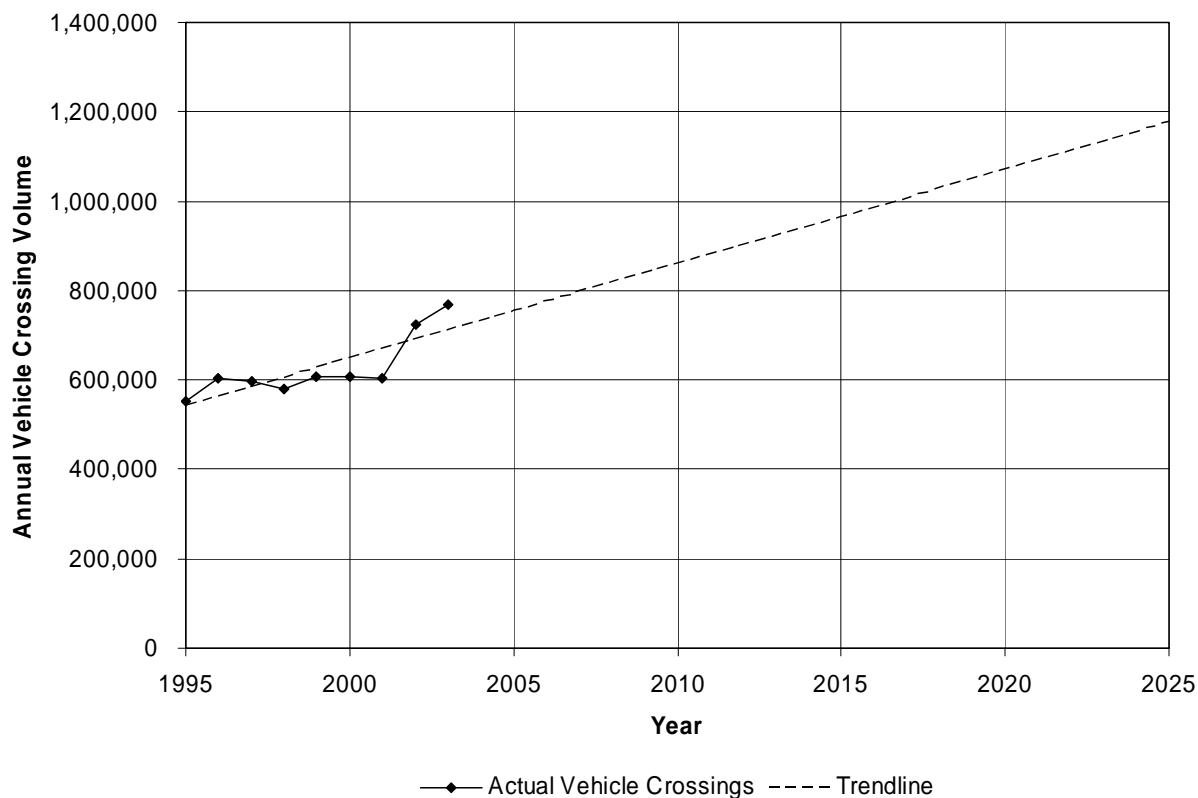
4.8 Traffic

4.8.1 Methodology and Significance Criteria

The transportation impact analysis includes the potential effects on traffic in the project area from the construction and operation of the project. The analysis is based on the review of existing traffic in the project area and project access requirements during construction and operation. A detailed discussion of traffic related to the project is presented in Appendix B. Construction activities represent the principal means by which a temporary impact on transportation could occur. Impacts to transportation are determined relative to the affected environment described in Section 3.9.

To determine if an action may cause a significant impact, both the context of the project and the intensity of the impact are considered. The context considers the impact of the project on traffic and transportation in and around the project area. The intensity of a transportation impact would primarily consider any unique characteristics of the area (e.g., high use traffic areas), and the degree to which the project may adversely affect such unique characteristics. Impacts would be significant if the project would permanently change the transportation system or would have extensive short-term effects during construction.

Future traffic queues were calculated based on inspection performance statistics and historical border crossing volumes provided by GSA (Office of Management Reporting Data Warehouse 2004, GSA 2005). Using linear regression, vehicle crossing volumes for the year 2025 were projected using data for the 9-year period from 1995 through 2003 (Figure 4.8-1). A linear model for vehicle queuing was constructed to simulate conditions at the peak crossing hour during the peak crossing month. This model was calibrated against a 2005 Border Wizard model run by GSA (GSA 2005).



Sources: Office of Management Reporting Data Warehouse 2004, Original

Figure 4.8-1. Graph of Vehicle Border Crossings with Projections, 1995-2025

4.8.2 Assessment of Impacts

4.8.2.1 Alternative 1

4.8.2.1.1 Construction

Through a phased construction approach, where the Main Building would continue to be utilized while Border Station residences and secondary inspection areas are demolished, the POE could continue operation. Brief periods of closure may be necessary during transitions between construction phases. Effects to existing traffic would be minimal during construction using this phased approach. The addition of construction worker traffic would be a small percentage of cross-border traffic and vehicles going to the Quechan parking lot.

4.8.2.1.2 Operation

During operation under Alternative 1, the number of northbound inspection lanes would be increased from two to four (Variant A) or three (Variant B), providing for increased vehicle inspection efficiency. This would result in a predicted maximum peak-hour northbound queue length in 2025 of 49 vehicles (980 feet) under Variant A or 127 vehicles (2,540 feet) under Variant B. These are compared to a predicted 2025 queue length of 205 vehicles (4,100 feet) under the No Action Alternative. Maximum individual vehicle wait times would be 9.4, 33, and 79 minutes under Variant A, Variant B, and the No Action Alternative, respectively.

4.8.2.2 Alternative 2

4.8.2.2.1 Construction

Through a phased construction approach, where the Main Building would continue to be utilized while Border Station residences and secondary inspection areas are demolished, the POE could continue operation. Brief periods of closure may be necessary during transitions between construction phases. Effects to existing traffic would be minimal during construction using this phased approach. The addition of construction worker traffic would be a small percentage of cross-border traffic and vehicles going to the Quechan parking lot.

4.8.2.2.2 Operation

During operation under Alternative 2, the number of northbound inspection lanes would be increased from two to four, providing for increased vehicle inspection efficiency. This would result in a predicted maximum peak-hour northbound queue length in 2025 of 49 vehicles (980 feet). This is compared to a predicted 2025 queue length of 205 vehicles (4,100 feet) under the No Action Alternative. Maximum individual vehicle wait times would be 9.4 minutes, compared with 79 minutes under the No Action Alternative.

4.8.2.3 Alternatives 3 and 4

4.8.2.3.1 Construction

The existing POE would continue to operate during construction of the new facility on the peninsula. Effects to existing traffic would be minimal during construction. The addition of construction worker traffic would be a small percentage of cross-border traffic and vehicles going to the Quechan parking lot.

4.8.2.3.2 Operation

During operation under Alternatives 3 and 4, the number of northbound inspection lanes would be increased from two to three, providing for increased vehicle inspection efficiency. This would result in a predicted maximum peak-hour northbound queue length in 2025 of 127 vehicles (2,540 feet). This is compared to a predicted 2025 queue length of 205 vehicles (4,100 feet) under the No Action Alternative. Maximum individual vehicle wait times would be 33 minutes, compared with 79 minutes under the No Action Alternative.

4.8.2.4 Alternative 5

4.8.2.4.1 Construction

The existing POE would continue to operate during construction of the new facility in Arizona, and would remain open for future POV traffic. Effects to existing traffic would be minimal during construction. Construction worker traffic would generally proceed through Yuma; however, this traffic would be a small percentage of overall Yuma traffic.

4.8.2.4.2 Operation

Although it is anticipated that a majority of POV traffic would be routed through this new POE, the percentage of drivers who would prefer crossing at the Arizona POE is unknown. Factors influencing the decision of which POE to use include:

- Proximity of the POE to vehicle origin and/or destination
- Road configuration determining ease of access, particularly from Mexico
- Real or perceived differences in vehicle wait times, which may depend on time of day
- Availability of amenities, such as shuttle buses and parking areas, provided for travelers on the Mexican side of the border

During operation under Alternative 5, the number of northbound inspection lanes for traffic leaving Algodones would be increased from two to five (two at existing facility and three at the new facility), providing for increased vehicle inspection efficiency. Assuming a distribution in traffic where 60 percent of vehicles use the new facility and 40 percent use the old facility, maximum peak-hour queues for 2025 are calculated at 14 (280 feet) and 18 vehicles (360 feet) at the existing facility and new facility, respectively. This is compared to a predicted 2025 queue length of 205 vehicles (4,100 feet) under the No Action Alternative. Maximum individual vehicle wait times would be 8.8 minutes at the existing facility and 5.5 minutes at the new facility, compared with 79 minutes predicted under the No Action Alternative.

Unlike Alternatives 1 through 4, Alternative 5 would place some burden on the Yuma County and City of Yuma transportation infrastructure. In particular, approaches to the POE on West 8th Street and Somerton Avenue would experience additional traffic. However, with POVs allowed at the existing POE, peak-hour traffic at the Arizona POE would be somewhat less than the peak level of 337 vehicles per hour predicted for both POEs in the year 2025. This volume of traffic would not result in significant additional congestion on Yuma County or City of Yuma streets.

4.8.3 No Action Alternative

Under the No Action Alternative, the peak hourly traffic volume would increase to 337 vehicles per hour in 2025, with a corresponding queue length of 205 vehicles (4,100) feet and a maximum wait time of 79 minutes. This could significantly impact the transportation infrastructure within Algodones. This alternative would not meet the project purpose and need.

4.9 Air Quality

4.9.1 Methodology and Significance Criteria

The potential impacts of the project on ambient air quality standards were assessed by first quantifying vehicle emission factors for carbon monoxide, oxides of nitrogen (NO_x), and total hydrocarbons. Of these, carbon monoxide and NO_x are criteria hazardous air pollutants regulated under the *Clean Air Act* of 1970 (42 U.S.C. §7401). These emission factors were determined using the MOBILE6.2 model and meteorological data sets from a University of Arizona station approximately one mile southeast of the existing Andrade POE. MOBILE6.2 (EPA 2005) is a U.S. Environmental Protection Agency (EPA) air model for determining emissions factors for a variety of vehicles under a wide range of operating conditions (EPA 2005). In modeling future emissions, MOBILE6.2 accounts for projected improvements in vehicle emission control technology and continual replacement of older, higher-polluting vehicles with newer, cleaner vehicles. Total emissions were determined by applying emissions factors to vehicles queued at peak hours, as described in Section 4.8, for each alternative in the year 2025. Detail of these calculations is shown in Appendix D.

An air quality impact would be significant with respect to criteria and hazardous air pollutant concentrations if project emissions would increase in excess of threshold values or contribute measurably to an existing or projected air quality violation.

Under any of the action alternatives, construction would take place with a potential to generate particulate emissions. Employing best management practices during construction, such as watering, would reduce up to 90 percent of the potential emissions. Pollutant emissions can also be expected from construction equipment. These emissions would be both temporary and incremental in comparison to vehicle traffic through the POE and in the area. They would not have a significant impact on air quality.

4.9.2 Assessment of Impacts

4.9.2.1 Alternatives 1 through 4

Alternatives 1 through 4 would result in the expansion of northbound inspection capacity from the existing two lanes to three (Alternative 1 Variant B, Alternative 3, Alternative 4) or four (Alternative 1 Variant A, Alternative 2) lanes. This expansion would provide for improved inspection efficiency and pedestrian safety at the POE, and decreases in queuing time with corresponding decreases in idling vehicle emissions. Table 4.9-1 compares modeled existing peak-hour emissions with projected emissions in the year 2025 under the No Action Alternative and Alternatives 1 through 4.

The comparison of emission rates shows a decrease compared to current rates by 2025 under every alternative, including the No Action Alternative, despite projected increases in traffic. Much of the decrease can be attributed to anticipated improvements in vehicle pollution-control systems. Differences in emission rates among alternatives are the result of improved vehicle flow through addition of inspection lanes. Because of the projected decrease in emission rates, no conformity analysis is required. None of these emissions represent a significant adverse effect to the environment.

Table 4.9-1. Comparison of MOBILE6.2-Modeled Peak-Hour Vehicle Emissions (lbs/hour)

Pollutant	Existing Emissions	Year 2025 Emissions					
		No Action Alternative	Alternative 1 Variant A	Alternative 1 Variant B	Alternative 2	Alternative 3	Alternative 4
Carbon Monoxide	19.7	15.3	4.11	9.69	4.11	9.69	9.69
Oxides of Nitrogen (NO _x)	1.74	0.714	0.192	0.453	0.192	0.453	0.453
Total Hydrocarbons	3.80	2.22	0.597	1.41	0.597	1.41	1.41

Source: Original

4.9.2.2 Alternative 5

Alternative 5 would result in the expansion of total inspection capacity for vehicles entering the U.S. from the existing two lanes to five, two at the existing facility and three at the new facility in Arizona. This expansion would provide for improved inspection efficiency and pedestrian safety at the POE, and decreases in queuing time with corresponding decreases in idling vehicle emissions. Table 4.9-2 compares modeled existing peak-hour emissions with projected emissions in the year 2025 under the No Action Alternative and Alternative 5.

Table 4.9-2. Comparison of MOBILE6.2-Modeled Peak-Hour Vehicle Emissions for Alternative 5 (lbs/hour)

Pollutant	Existing Emissions	Year 2025 Emissions	
		No Action Alternative	Alternative 5
Carbon Monoxide	19.7	15.3	2.29
Oxides of Nitrogen (NO _x)	1.74	0.714	0.107
Total Hydrocarbons	3.80	2.22	0.333

Source: Original

The comparison of emission rates shows a decrease compared to current rates by 2025 under Alternative 5, despite projected increases in traffic. The decrease can be attributed to improved vehicle flow through addition of inspection lanes and anticipated improvements in vehicle pollution-control systems. Because of the projected decrease in emission rates, no conformity analysis is required. None of these emissions represent a significant adverse effect to the environment.

4.9.3 No Action Alternative

Under the No Action Alternative, peak-hour emissions of carbon monoxide, NO_x, and total hydrocarbons in 2025 would decrease by 23, 59, and 42 percent from existing levels, respectively. These reductions would occur despite the increase in peak-hour traffic volume from 218 to 337 vehicles because of projected improvements in vehicle emission technology and replacement of older, higher-polluting vehicles with newer, cleaner vehicles. However, this alternative would not meet the project purpose and need.

4.10 Noise

4.10.1 Methodology and Significance Criteria

The assessment of noise impacts involved the identification of project noise sources and the location of noise-sensitive receptors. Noise monitoring was not performed at the Andrade POE and noise modeling was not performed for this analysis because of the following:

- Lack of noise-sensitive receptors in the area (no residences within 1 mile of the project under any of the alternatives) and no plans for changes in land use that would introduce noise-sensitive receptors
- Limits on the number of commercial vehicles that would be allowed through the POE
- Lack of noise-generating activities associated with operation of the POE. Temporary construction noise is addressed separately.

Significance criteria were based on Yuma County noise standards and EPA noise compatibility guidelines. The Yuma County Planning and Zoning Ordinance restricts the type of development in certain noise zones, such as zones where existing noise levels exceed 65 dBA. Generally, this is directed toward limiting development in the vicinity of an airport. The noise analysis has extrapolated this to mean that sound levels up to 65 dBA L_{dn} are considered compatible with residential land uses. Using this criteria, development in areas where the noise is in excess of 65 dBA L_{dn} would be restricted. This would be considered a significant impact if it would impose restrictions on land currently planned for residential development.

EPA published acoustical guidelines designed to protect the public health and welfare with an adequate margin of safety. The guidelines classify the various areas according to the primary activities that are most likely to occur in each area. Indoor noise environment of 45 dBA L_{dn} would permit speech communication in homes, while an outdoor L_{dn} not exceeding 55 dBA would permit normal speech communication. An $L_{eq}(24)$ of 70 dB is identified as protective against hearing loss. Therefore, impacts related to noise would be considered significant if the EPA guidelines of 55 dBA $L_{eq}(24)$ at the nearest residence would be exceeded, or if the county standard of 65 dBA L_{dn} would be exceeded in areas planned for residential development.

4.10.2 Assessment of Impacts

Although noise would be produced during construction activities for the project, this is expected to be short term (i.e., limited to the months during active construction). Construction activities would occur only during the daytime. The noise created during the construction activities would exceed the EPA guidelines for short periods of time. However, this is not considered a significant impact due to the limited period of noise generation during each day combined with the limited period of the construction activity overall. The noise from the construction activity would not create significant or long-term effects.

Operation of the project would result in noise from vehicles starting, stopping, running at low speeds, and idling. Inspection activities generate a relatively small amount of noise including speaking, opening and closing of building doors, and closing of car doors and trunks.

There are a number of mitigating circumstances that reduce the overall impact of noise generated from the project. The area to the north of the project is already impacted by noise from I-8. The

area to the south of Alternatives 1 through 4 and west of Alternative 5 is already impacted by traffic and other noise emanating from Algodones, Mexico. Both of these areas are already experiencing episodes of noise levels in excess of 65 dBA.

The noise levels from facility operation could exceed 65 dBA (the Yuma County standard) at the property line. However, the noise levels would be well below the guideline at the nearest residences, more than 1 mile from any of the alternatives. This would only have an effect on land immediately adjacent to the facility boundary and future residential development in this area would be restricted. This property is planned for continued agricultural use. Therefore the county standards would not affect the current land use plans in the vicinity of the project.

4.10.3 No Action Alternative

The No Action Alternative would result in no change to the existing noise levels in the area; however, the purpose and need for the project would not be met.

4.11 Human Health and Safety

4.11.1 Worker Health and Safety

4.11.1.1 Methodology and Significance Criteria

Health and safety issues have been evaluated in the context of general air quality, noise, hazardous materials, and accidents. Analysis of the impacts to worker and public health and safety consists of an evaluation of the effects caused by the construction and operation of the project.

The project would have a significant adverse effect on worker health and safety if the project would create a worker health hazard beyond limits set by health and safety regulatory agencies or would present a worker health and safety hazard that endangers human life and/or property.

4.11.1.2 Assessment of Impacts

4.11.1.2.1.1 Construction

The level of risk to construction workers increases in relation to the amount of new construction required. Construction accident risks increase based on the length of the construction period and the number of construction workers for each component of the project (see Section 2 for details). All applicable OSHA and Arizona Division of Occupational Safety and Health codes for health and safety would be implemented for all identified and anticipated hazards to worker health and safety, providing for basic standards of worker health and safety. Implementation and compliance with these codes and standards would be the responsibility of the party performing construction.

Potential health impacts to construction workers from the project would include fugitive dust and noise typical of construction sites, although dust control measures would be implemented. Construction workers could be exposed to airborne emissions from routine activities, such as welding, soldering, grinding, painting, and cleaning operations. Demolition of the existing facility could result in exposure to asbestos, polychlorinated biphenyls, or lead-based paint. The potential noise impact to workers from heavy equipment operation and activities such as cutting

metal or grinding operations would likely pose higher noise levels to workers than noise during facility operations. These exposures would be intermittent, but may be intense and would be evaluated at the time of construction. Workers would also be at risk for typical construction site injuries such as trips and falls. Health and safety programs would be designed and implemented by the contractor performing construction to ensure compliance with OSHA codes, including requirements for personal protection equipment, chemical exposure limits, and safe work practices, such that the potential adverse impacts to worker health and safety during construction would be minimized.

The residual health and safety impacts of construction to workers, as mitigated through the mitigation measures described in this section that are included as part of the project, would be small and insignificant because there would be no worker hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

4.11.1.2.1.2 Operation

Worker health and safety issues during operation of the proposed facility would primarily be typical industrial work-related injuries such as bruises, cuts, falls, and repetitive stress injuries. Good housekeeping and work-related practices would mitigate hazards that could result in slips, trips, falls, and other injuries. All applicable OSHA codes for health and safety, including electrical design standards, would be implemented for all identified and anticipated hazards to worker health and safety, providing for basic standards of worker health and safety during facility operations. As a mitigation measure, the project would comply with OSHA Worker Safety Noise Standards during facility operation. The overall design, layout, and operational protocols of the project would minimize occupational hazards and injuries.

The residual health and safety impacts of operation of the proposed facility, as mitigated through the mitigation measures described in this section that are included as part of the project, would be small and insignificant because there would be no worker hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

4.11.1.2.1.3 Additional Mitigations

Because the residual health and safety impacts of construction and operation of the proposed facility with the mitigation measures included as part of the project are not significant, no additional health and safety mitigation measures are recommended.

4.11.2 Public Health and Safety

4.11.2.1 Methodology and Significance Criteria

Health and safety issues have been evaluated in the context of general air quality, noise, hazardous materials, and accidents. Analysis of the impacts to worker and public health and safety consists of an evaluation of the effects caused by the construction and operation of the project.

The project would have a significant adverse effect on public health and safety if the project would create a public health hazard beyond limits set by health and safety regulatory agencies or would present a public health and safety hazard that endangers human life and/or property.

4.11.2.2 Assessment of Impacts

4.11.2.2.1 Construction

Potential health impacts to the public from construction of the project include fugitive dust typical of construction sites and noise. Dust control measures would be implemented to reduce the health risk. Dust and noise generated by construction activities would be short term and not result in a public health impact.

For construction of the facility and support structures, the boundaries of the work area would be surveyed and staked with fences, flags, or signs. Temporary fences would be erected wherever feasible to control public access to construction areas. In addition, construction equipment would be secured at night except within fenced areas.

The residual health and safety impacts of construction to the public, as mitigated through the mitigation measures described in this section that are included as part of the project, would be small and insignificant because there would be no public hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

4.11.2.2.2 Operation

The separation of pedestrian and vehicle traffic, common to all of the action alternatives, would reduce the risk of pedestrian injury. Because all of the predicted air quality impacts are below both the NAAQS established by EPA to protect public health and safety (including the health and safety of the sick and elderly), no significant impact is expected as a result of facility operations.

The residual health and safety impacts of operation of the project would be small and insignificant because there would be no public hazards beyond limits set by health and safety regulatory agencies and no threat to human life and/or property.

4.11.2.2.3 Additional Mitigations

Because the residual health and safety impacts of construction and operation of the proposed facility with the mitigation measures included as part of the project are not significant, no additional health and safety mitigation measures are recommended.

4.11.3 No Action Alternative

Under the No Action Alternative, the project would not be built or operated. The potential for construction accidents or worker or public exposure to additional amounts of fugitive dust and noise associated with the project would not occur; however, the purpose and need for the project would not be met.

4.12 Socioeconomics

4.12.1 Methodology and Significance Criteria

The analysis of socioeconomics impacts considered effects on economic activity as measured by changes in employment and earnings, and the community as measured by changes in population and the demand for housing and community services. The socioeconomic impacts estimated in

this analysis were generated by expenditures and employment allocated to the project and its associated components. The analysis measured incremental effects and their overall effects on the region of influence from changes in expenditures, income, and employment associated with the project. The region of influence is the Fort Yuma Indian Reservation and Yuma County, the areas surrounding the project location where it is estimated that the majority of project construction and operation employees and their families would reside, spend their wages and salaries, and use their benefits.

The analysis addressed both direct and indirect socioeconomic impacts. Direct impacts are changes in project construction and operations employment and expenditures expected to take place under the project. Spending by project would directly affect the region of influence in terms of dollars of expenditures gained or lost for individuals and businesses, dollars of income gained or lost to households, and the number of project jobs created or lost. Project employment and expenditures would directly affect the overall economic and social activities of the communities and people living in the region of influence. Additionally, businesses and households in the region of influence would respond project-generated money, which would in turn create indirect and induced socioeconomic effects. Every subsequent responding of money by businesses and households in the region of influence is another tier of indirect and induced socioeconomic effects originating from project construction and operations. The total economic impact to the region of influence is the sum of direct and indirect impacts.

To analyze socioeconomic effects, GSA used total employment and earnings multipliers for the region of influence obtained from the Regional Input-Output Modeling System II (RIMS II) (BEA 2003a). The RIMS II model's multipliers are derived from the BEA's national input-output table adjusted using the BEA's most recent region-specific information describing the relationship of the regional economy to the national economy.

Indirect impacts were determined by applying the region-specific multipliers to direct job and project expenditure estimates to determine the comparable change in the regional economy. Multipliers can vary by project phase. For example, the multiplier used to estimate indirect employment during the operational phase differs from the multiplier used for the construction phase.

The importance of the project and its impacts was determined relative to the context of the affected environment. The regional baseline conditions as presented in Section 3.13 provide the framework for analyzing the importance of potential socioeconomic impacts that could result from implementation of the project. Impacts would be considered significant if the change resulting from the project would exceed historical or estimated fluctuations in the regional economy. The selected socioeconomic impact areas are demographics, economic base, and housing/community services.

4.12.2 Assessment of Impacts

4.12.2.1 Alternatives 1 through 4

The project would not cause any noticeable change in existing demographic characteristics within the socioeconomic region of influence. With respect to the region's economic base, the project-related employment would occur in two stages. The first stage would include the temporary employment of a workforce for construction of the project. The second stage would

require a smaller level of permanent employment for operation and management of the project. Construction of the project is anticipated to span a period of 12 to 18 months requiring a range of 30 to 50 employees, depending on the construction phase. The workforce would include both skilled and nonskilled workers. Approximately 80 permanent workers would be needed to operate the facility. The majority of the required workforce would be available in the Yuma area; however, in order to be conservative, it would be assumed that the entire workforce would migrate into the county and its communities.

4.12.2.1.1 *Population*

The project would not create a noticeable change in population within the region of influence (see Section 3.13.1). To be conservative, it is assumed that the project would result in an in-migration of a maximum of 50 workers to Yuma County for an estimated 12 to 18 months, and a maximum of 40 permanent workers (above the current workforce) for the project operation. Assuming the Census 2000 figure of 2.86 persons per household for the county, the population associated with the additional workforce migrating into the county is estimated to be 183 persons during the construction phase and 146 during the operation phase. The construction estimate, a bounding scenario, would represent a 0.11-percent increase from the Census 2000 Yuma County population. This increase is within historical population fluctuations. Therefore, impacts to area populations would be small.

4.12.2.1.2 *Employment*

The project would result in a direct increase in employment in addition to an indirect increase in employment through nonpayroll expenditures. Additional goods and services would be required to support the additional activities, facilities, and workers generated by the project. The additional expenditures of new personnel would generate additional income and employment opportunities within the region as the expenditures filter throughout the economy.

For construction employment, the combined direct and indirect effects of employment would result in an increase of approximately 64 jobs within the region. For operations employment, the combined direct and indirect effects would result in an increase of approximately 51 jobs within the region. These represent employment increases of approximately 0.1 percent in Yuma County. These increases are within historic employment fluctuations. Therefore, impacts to area employment would be small.

4.12.2.1.3 *Housing*

The project would create a very small change in existing housing within the region of influence (see Section 3.13.2). Assuming 1 housing unit per additional employee, a maximum of 50 temporary housing units would be required for the construction phase of the project and a maximum of 40 housing units would be required for the operations phase. The bounding scenario, 50 housing units, represents less than 0.1 percent of the housing stock available in the region of influence, and is substantially less than the available vacant housing. Therefore, region-of-influence housing capacity would exceed project-related demand. There would be no impact by the project on housing.

4.12.2.1.4 Community Services

The project would not create a noticeable change in community services within the region of influence (see Section 3.13.4). As stated in the population section, the largest increase in population is attributed to the temporary 12- to 18-month construction period of the project and represents approximately 0.1 percent of the 2000 county population. The construction workforce would be temporary and relatively small. Because community services have been constructed and operated to meet current demand, the temporary increase in population and subsequent use of community services would be immeasurable. The operations workforce and resultant population increase would be less than 0.1 percent of the 2000 county population. Therefore, the operations-related use of community services would also be immeasurable.

4.12.2.2 Alternative 5

The project would not cause any noticeable change in existing demographic characteristics within the socioeconomic region of influence. With respect to the region's economic base, the project-related employment would occur in two stages. The first stage would include the temporary employment of a workforce for construction of the project. The second stage would require a smaller level of permanent employment for operation and management of the project. Construction of the project is anticipated to span a period of 12 to 18 months requiring a range of 75 to 150 employees, depending on the construction phase. The workforce would include both skilled and nonskilled workers. Approximately 100 permanent workers would be needed to operate the facility. The majority of the required workforce would be available in the Yuma area; however, in order to be conservative, it would be assumed that the entire workforce would migrate into the county and its communities.

4.12.2.2.1 Population

The project would not create a noticeable change in population within the region of influence (see Section 3.13.1). To be conservative, it is assumed that the project would result in an in-migration of a maximum of 150 workers to Yuma County for an estimated 12 to 18 months, and a maximum of 60 permanent workers (above the current workforce) for the project operation. Assuming the Census 2000 figure of 2.86 persons per household for the county, the population associated with the additional workforce migrating into the county is estimated to be 549 persons during the construction phase and 220 during the operation phase. The construction estimate, a bounding scenario, would represent a 0.34-percent increase from the Census 2000 Yuma County population. This increase is within historical population fluctuations. Therefore, impacts to area populations would be small.

4.12.2.2.2 Employment

The project would result in a direct increase in employment in addition to an indirect increase in employment through nonpayroll expenditures. Additional goods and services would be required to support the additional activities, facilities, and workers generated by the project. The additional expenditures of new personnel would generate additional income and employment opportunities within the region as the expenditures filter throughout the economy.

For construction employment, the combined direct and indirect effects of employment would result in an increase of approximately 192 jobs within the region. For operations employment,

the combined direct and indirect effects would result in an increase of approximately 77 jobs within the region. These represent employment increases of 0.3 percent or less in Yuma County. These increases are within historic employment fluctuations. Therefore, impacts to area employment would be small.

4.12.2.2.3 *Housing*

The project would create a very small change in existing housing within the region of influence (see Section 3.13.2). Assuming 1 housing unit per additional employee, a maximum of 150 temporary housing units would be required for the construction phase of the project and a maximum of 60 housing units would be required for the operations phase. The bounding scenario, 150 housing units, represents 0.2 percent of the housing stock available in the region of influence, and is substantially less than the available vacant housing. Therefore, region-of-influence housing capacity would exceed project-related demand. There would be no impact by the project on housing.

4.12.2.2.4 *Community Services*

The project would not create a noticeable change in community services within the region of influence (see Section 3.13.4). As stated in the population section, the largest increase in population is attributed to the temporary 12- to 18-month construction period of the project and represents a 0.34-percent increase from the 2000 county population. The construction workforce would be temporary and relatively small. Because community services have been constructed and operated to meet current demand, the temporary increase in population and subsequent use of community services would be immeasurable. The operations workforce and resultant population increase would be approximately 0.2 percent of the 2000 county population. Therefore, the operations-related use of community services would also be immeasurable.

4.12.3 No Action Alternative

Under the No Action Alternative, the project would not be built and operated. As a result, increasing pressure would be put on the Andrade POE, commensurate with population growth in Yuma County. Though border crossing congestion would be an inconvenience to many Yuma area residents, it would be unlikely to affect population growth trends, the economy, housing, and community services in the region of influence. Growth in population, the economy, and housing would likely continue at historical rates under the No Action Alternative; however, the purpose and need for the project would not be met.

4.13 *Environmental Justice*

4.13.1 Methodology and Significance Criteria

GSA considered whether there were any means for minority or low-income populations to be disproportionately affected by the construction and operation of the project. GSA's basis for making this determination is a comparison of areas predicted to experience human health or environmental impacts with areas in the region of influence known to contain high percentages of minority or low-income populations, as reported by the U.S. Census Bureau, and defined by the CEQ. Information on locations and numbers of minority and low-income populations was obtained and derived from 2000 Census data.

Impacts on minority or low-income populations that could result from the project were analyzed for the geographic areas in which the project would be located to determine if they would have disproportionately high and adverse impacts. Impacts related to the project were analyzed within the census tracts containing the components of the project (see Section 3.14). These census tracts were selected because they encompass any potential impacts caused by the project, as depicted in the Chapter 4 resource area analyses, which include: geology and soils, water resources, land use, biological resources, cultural resources, visual resources, infrastructure, traffic, air resources, noise, human health and safety, and socioeconomics, during both the construction and operation phases of the project.

As stated in Section 3.14.1, “minority” refers to people who classified themselves in the 2000 Census as Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, Hispanic of any race or origin, or other non-White races (CEQ 1997). As stated in Section 3.14.2, environmental justice guidance defines low-income using statistical poverty thresholds used by the U.S. Census Bureau. Information on low-income populations was developed from 1999 incomes reported in the 2000 Census. In 1999, the poverty-weighted average threshold for an individual was \$8,501 (Census 2002c).

Because most of the alternatives are located on the Fort Yuma Indian Reservation, multiple meetings have been held with the Tribal Council to obtain their assistance in review and development of the various alternatives. This was done to ensure that their concerns regarding cultural, social, and economic resources were incorporated into alternative development.

Impacts associated with environmental justice are significant if the impacts of construction and operation of the project would have disproportionately high and adverse impacts on minority or low-income populations as defined by EPA criteria.

4.13.2 Assessment of Impacts

4.13.2.1 Alternative 1

4.13.2.1.1 *Minority Populations*

The siting of Alternatives 1 through 4 on the Fort Yuma Indian Reservation is relevant to the analysis of environmental justice considerations. Three resource areas, traffic, air quality, and socioeconomics, are particularly relevant in discussion of environmental justice. Though the project would generate traffic and resultant effects to air quality, construction of the project is anticipated to improve traffic flow and air quality from the present conditions. Under Alternative 1, the border crossing would remain accessible from the Quechan parking lot; however, 200 parking spaces would be eliminated. The loss of these parking spaces would be compensated as part of lease negotiations with the Quechan tribe. As a result of this mitigation, no environmental justice impacts are anticipated.

4.13.2.1.2 *Low-Income Populations*

For purposes of the environmental justice analysis, the Fort Yuma Indian Reservation is considered a low-income population, with 34.1 percent of individuals living below the poverty level compared with 19.2 percent for Yuma County. The discussion of environmental justice impacts presented for minority populations in Section 4.13.2.1.1 above is applicable to low-income populations in this case. Likewise, no environmental justice impacts are anticipated.

4.13.2.2 Alternatives 2 through 4

4.13.2.2.1 Minority Populations

However, the siting of Alternatives 2 through 4 on the Fort Yuma Indian Reservation is relevant to the analysis of environmental justice considerations. Three resource areas, traffic, air quality, and socioeconomics, are particularly relevant in discussion of environmental justice. Though the project would generate traffic and resultant effects to air quality, construction of the project is anticipated to improve traffic flow and air quality from the present conditions. Under any of these alternatives, the border crossing would remain accessible from the Quechan parking lot, thus having little or no effect on resulting Tribal economic activity. No environmental justice impacts are anticipated.

4.13.2.2.2 Low-Income Populations

For purposes of the environmental justice analysis, the Fort Yuma Indian Reservation is considered a low-income population, with 34.1 percent of individuals living below the poverty level compared with 19.2 percent for Yuma County. The discussion of environmental justice impacts presented for minority populations in Section 4.13.2.2.1 above is applicable to low-income populations in this case. Likewise, no environmental justice impacts are anticipated.

4.13.2.3 Alternative 5

4.13.2.3.1 Minority Populations

Census tract 110, site of the new vehicle POE under Alternative 5, has a minority population percentage of 53.2 as compared with the Yuma County's 55.7 percent. Under the methodology used in this analysis, this census tract does not qualify as minority. However, census tract 4.02, an area of west Yuma, has a minority percentage of 85.8, well above the Yuma County average. Under Alternative 5, streets passing through west Yuma would experience an increase in traffic. However, this additional traffic is not considered a significant impact, and no environmental justice impacts are anticipated.

As discussed in this chapter under the various resource areas analyzed, the project has little potential to adversely affect human health and/or the environment. However, the movement of the vehicular POE to the Arizona side of the Colorado River could have a socioeconomic impact of the Fort Yuma Indian Reservation. It is unclear whether this would be a negative or positive impact. Without a vehicular POE, the Quechan parking lot could see a reduction in use as some visitors to the Yuma area may not realize the POE still functions as a pedestrian facility. Permanent or seasonal residents living in Yuma could find the new POE more convenient, depending on measures taken by the city government or businesses in Algodones to improve access to their community (e.g., construction of a parking lot in Algodones). Conversely, improvements in safety at the pedestrian POE could attract additional area residents to the Quechan parking lot.

Overall, this analysis concludes that any change to number of users of the Quechan parking lot would be small; the socioeconomic effect to the Fort Yuma Indian Reservation would not be significant.

4.13.2.3.2 Low-Income Populations

For purposes of the environmental justice analysis, the Fort Yuma Indian Reservation is considered a low-income population, with 34.1 percent of individuals living below the poverty level compared with 19.2 percent for Yuma County. Census tracts 110 and 4.02, with percentages of individuals living below poverty level of 20.1 and 29.1, respectively, are both considered low-income populations for purposes of this analysis.

Construction of the project under Alternative 5 would remove approximately 50 acres of farmland from census tract 110. This represents a small percentage of farmland in the area. Owners of this land would be compensated for the property. There are no residents in the immediate vicinity of the proposed POE site. No other significant environmental impacts have been identified, including traffic as discussed in Section 4.13.2.3.1. There would be no environmental justice impacts.

The discussion of environmental justice impacts presented for minority populations on the Fort Yuma Indian Reservation in Section 4.13.2.3.1 above is applicable to low-income populations on the Reservation in this case. Likewise, no environmental justice impacts to the Fort Yuma Indian Reservation are anticipated.

4.13.3 No Action Alternative

Under the No Action Alternative, the project would not be built and operated. Operations would continue at the current Andrade POE. There would be no impacts to minority or low-income populations; however, the purpose and need for the project would not be met.

4.14 Cumulative Impacts

CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508). The regulations further explain that “cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.” The cumulative effects analysis presented in this EIS is based on the potential effects (direct and indirect) of construction and operation of the Andrade POE combined with other past, present, and reasonably foreseeable future actions that could have effects in the project area.

The following resource areas have been evaluated for cumulative effects: geology and soils, water resources, land use, biological resources, cultural resources, visual resources, infrastructure, traffic, air quality, noise, human health and safety, socioeconomics, and environmental justice.

4.14.1 Methodology

The cumulative effects were assessed by combining two categories of actions: anticipated project activities, and other reasonably foreseeable future projects and activities. Anticipated project activities are discussed in detail in Chapters 1 through 4 of this EIS. Actions by others in the region include the construction of a hotel/casino by the Quechan Tribe at the southwest corner of the I-8/SR-186 interchange (Analytical Environmental Services 2005), and overall continued

population growth in the Yuma area. This size of the Quechan hotel/casino is estimated at 295,000 square feet and it will be located on a 22-acre site. There will be 1,500 parking spaces, stormwater facilities, a wastewater treatment facility, and water supply infrastructure. Approximately 800 to 1,000 people will be employed at the facility. It is anticipated that construction of the hotel/casino will begin within the next year.

4.14.2 Cumulative Impacts by Resource Area

4.14.2.1 Geology and Soils

Disturbance related impacts to geology and soils are mostly site specific. In order for the impacts related to disturbance to be considered cumulative they have to occur on or close to the site evaluated for the project. There are no reasonably foreseeable actions that would occur on or close to the project site, therefore, there are no cumulative impacts.

4.14.2.2 Water Resources

The project would use water from the underlying aquifer for facility maintenance and irrigation, while trucking in water for drinking. There is ample water supply for the needs of the project. The Quechan hotel/casino would use water from either a direct diversion of the All-American Canal or groundwater. The proposed would not use surface water. Water usage by the project would have no significant cumulative impact on any other water consumers in the area.

4.14.2.3 Land Use

No significant cumulative impacts would occur to land use under Alternatives 1 through 4, given that land is either already developed, or already disturbed through anthropogenic (human) activities. Alternative 5 would result in the elimination of approximately 50 acres of prime farmland, a resource that is under increasing pressure in the Yuma Valley as development increases. This represents a significant cumulative impact.

4.14.2.4 Biological Resources

Potential cumulative impacts on biological resources in the project area are due to residential, commercial, and agricultural developments. All of these have the potential to remove habitat, increase displacement of wildlife, increase mortality to plants and animals, and fragment habitat, potentially reducing biological diversity. The areas that would be disturbed by the project are disturbed and of relatively low habitat value. Therefore, no significant cumulative impacts are anticipated.

4.14.2.5 Cultural Resources

In the project area, previous developments include I-8, SR-186, multiple irrigation and drainage structures, railroads, transmission lines, the existing POE, tribal enterprises (parking lot, market, trailer park), and extensive agriculture. Very little of the alternative project areas has remained unaffected by construction or other ground disturbing activities. These developments have likely disturbed cultural resources. Continued future development in the region of influence is likely. These future activities could have impacts to cultural resources similar to those from past projects and the project. The proposed hotel/casino could also result in disturbance to cultural resources, though it is likely that that project area is already somewhat disturbed.

Under Alternatives 1 through 4, the project would likely result in impacts to historic-age architectural and engineering resources. These impacts would be similar to those that have already occurred and to those that would likely occur in the future. The impacts from the selected alternative would be additive to those contributing to an overall cumulative impact. Under Alternative 5, there would be no cumulative impacts to cultural resources as the levee would not be impacted by the project nor other known projects.

4.14.2.6 Visual Resources

Impacts to the viewsheds in the area of the project are already altered from a natural, scenic state by existing man-made structures including the current POE, the Quechan parking lot, the city of Algodones, overhead powerlines, and levees. Cumulative visual impacts of the project would be negligible.

4.14.2.7 Infrastructure

Continued population growth in the Yuma area has the potential to cause strain to water, wastewater, and electrical generation and transmission systems. The project would have its own water supply and wastewater systems. Electrical supply and transmission in the area will be enhanced by the Wellton-Mohawk Generating Facility project (Western 2005). Therefore, there would be no cumulative impacts to infrastructure.

4.14.2.8 Traffic

The Quechan hotel/casino will generate substantial additional traffic at the I-8/SR-186 interchange and on SR-186 from I-8 south to the hotel/casino entrance (approximately 1/8 mile). Average daily traffic on this segment of SR-186 is projected to increase from a current level of 5,100 vehicles to 18,800 vehicles in 2025 (Analytical Environmental Services 2005). To maintain level of service, SR-186 would be widened to four lanes and traffic signals would be added to the interchange to accommodate the hotel/casino project. With these improvements, there would be no significant cumulative traffic impacts for Alternatives 1 through 4.

Continued growth in the Yuma area has increased congestion on the road network. Additional traffic from this growth, combined with traffic related to a new POE proposed under Alternative 5, would likely reduce levels of service on some streets within Yuma, particularly along West 8th Street. Significant cumulative impacts could result from this additional traffic.

4.14.2.9 Air Quality

No significant impacts are expected to air quality from the project. Overall reductions in air emissions are expected with implementation of the project, and the project would not be a significant contributor to hazardous air pollutants in the area. Project construction would result in fugitive dust emissions that may have a temporary adverse impact on local air quality. These impacts would be comparable to the current agricultural activity ongoing in the area. No significant cumulative impacts are anticipated.

4.14.2.10 Noise

Relatively high and continuous levels of noise would be produced by heavy equipment operations during project construction. There are no other significant noise sources or other facilities known or planned in the immediate project area that would contribute to a significant

cumulative effect. Likewise, operation of the facility combined with other noise sources in the area (traffic, activities in Algodones) would not raise cumulative noise to levels of significance.

4.14.2.11 Health and Safety

Worker and public health impacts from construction of the project would be due to work-related injuries, fugitive dust emissions, and increased noise levels. All construction and operation activities would have little to no impact because risks to worker and public health and safety would be minimized through facility design, safe work practices, and routine maintenance. No other projects would cause additive effects to these risks. Therefore, no significant cumulative impacts are anticipated.

4.14.2.12 Socioeconomics

The project, in addition to the Quechan hotel/casino, would be expected to have a positive influence on the local economy due to payroll earnings and construction expenditures. Associated development in the area is likely to increase the income and the tax base in the region. However, given the large size of the regional economy in comparison to increases in the POE workforce, cumulative impacts would be insignificant.

4.14.2.13 Environmental Justice

Under Alternative 5, the combination of the project and continued area population growth would likely result in traffic congestion along West 8th Street in Yuma, a predominantly minority and low-income area. This congestion could result in decreased property values and inconvenience for residents accessing their homes and apartments. This is potentially a significant cumulative impact. If Alternative 5 is chosen as the preferred alternative, an additional traffic study may have to be performed, using the exact location of Alternative 5, to evaluate this impact.

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Bureau of Land Management
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Bureau of Reclamation
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Mexicali, Mexico

City of Algodones
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Tribal Government

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Arizona State Government

Arizona Department of Environmental
Quality
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Arizona Game and Fish Department
Yuma, AZ

Arizona Department of Water Resources
Phoenix, AZ

Arizona State Land Department
Phoenix, AZ

Governor Janet Napolitano
Phoenix, AZ

California State Government

Governor Arnold Schwarzenegger
Sacramento, CA

Native American Heritage Commission
Sacramento, CA

Caltrans District 11
San Diego, CA

State Clearinghouse
Sacramento, CA

Local Government

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Yuma, AZ

Yuma County Board of Supervisors
Yuma, AZ

Imperial County Board of Supervisors
El Centro, CA

Imperial Valley Irrigation District
Winterhaven, CA

Greater Yuma Port Authority
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